For the reasons set forth in the preamble, 7 CFR part 205, subpart G is amended as follows:

PART 205—NATIONAL ORGANIC PROGRAM

1. The authority citation for 7 CFR part 205 continues to read as follows: Authority: 7 U.S.C. 6501–6522.

2. Section 205.601 is amended by:

A. Adding new paragraph (a)(8);
B. Designating paragraphs (e)(2) through (e)(9) as (e)(3) through (e)(10) and adding new paragraph (e)(2);
C. Designating paragraphs (i)(1) through (i)(11) as (i)(2) through (i)(12) and adding new paragraph (i)(1); and
D. Revising paragraph (m)(2).

The additions and revisions read as follows:

§ 205.601 Synthetic substances allowed for use in organic crop production.
(a) * * * * * 
(8) Sodium carbonate peroxyhydrate (CAS #–15630–89–4)—Federal law restricts the use of this substance in food crop production to approved food uses identified on the product label.

(e) * * *
(2) Aqueous potassium silicate (CAS #–1312–76–1)—the silica, used in the manufacture of potassium silicate, must be sourced from naturally occurring sand.

(i) * * *
(1) Aqueous potassium silicate (CAS #–1312–76–1)—the silica, used in the manufacture of potassium silicate, must be sourced from naturally occurring sand.

(m) * * * * *

(2) EPA List 3—inerts of unknown toxicity—for use only in passive pheromone dispensers.

2. Section 205.605 is amended by adding one new substance in alphabetical order to paragraph (a) to read as follows:

§ 205.605 Nonagricultural (nonorganic) substances allowed as ingredients in or on processed products labeled as ‘organic’ or ‘made with organic (specified ingredients or food group(s))’.
(a) * * *
* * * * *

Gellan gum (CAS # 71010–52–1)—high-acetyl form only.

3. Section 205.606 is amended by:

A. Redesignating paragraphs (g) through (1) and (u) through (w) as paragraphs (b) through (u) and (w) through (y) respectively;
B. Adding new paragraphs (g) and (v) to read as follows:

§ 205.606 Nonorganically produced agricultural products allowed as ingredients in or on processed products labeled as ‘organic.’

• • • • *

(g) Fortified cooking wines.

(1) Marsala.

(2) Sherry.

• • • • *

(v) Tragacanth gum (CAS #–9000–65–1).

• • • • *


David R. Shipman,
Acting Administrator, Agricultural Marketing Service.

[FR Doc. 2010–31196 Filed 12–10–10; 8:45 am]
BILLING CODE 3410–02–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 29

[Docket No. SW023; Special Conditions No. 29–023–SC]

Special Conditions: Sikorsky Aircraft Corporation Model S–92A Helicopter; Installation of a Search and Rescue (SAR) Automatic Flight Control System (AFCS)

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions; request for comments.

SUMMARY: These special conditions are issued for the Sikorsky Aircraft Corporation (Sikorsky) model S–92A helicopter. This helicopter, as modified by Sikorsky, will have novel or unusual design features associated with installing an optional SAR AFCS. The applicable airworthiness standards do not contain adequate or appropriate safety standards for this design feature. These special conditions contain the additional safety standards the Administrator considers necessary to show a level of safety equivalent to that established by the existing airworthiness standards.

DATES: The effective date of these special conditions is December 3, 2010. We must receive your comments by February 11, 2011.

ADDRESSES: You must mail or deliver two copies of your comments to: Federal
Aviation Administration, Rotorcraft Directorate, Attn: Special Conditions Docket (ASW–111), Docket No. SW023, 2601 Meacham Blvd., Fort Worth, Texas 76137. You must mark your comments: Docket No. SW023. You can inspect comments in the Docket on weekdays, except Federal holidays, between 8:30 a.m. and 4 p.m.

FOR FURTHER INFORMATION CONTACT:

SUPPLEMENTARY INFORMATION:
Background and Discussion

On July 30, 2007, Sikorsky applied for a change to Type Certificate (TC) No. R00024BO to install an optional SAR AFCS in the model S–92A helicopter. These special conditions were recently developed due to the intended function of the S–92A SAR AFCS not being completely defined until late in the certification program. The model S–92A is a transport category helicopter certified to Category A or B requirements when configured for more than nine passengers and Category A or B requirements when configured for nine or less passengers. This helicopter is also certified for instrument flight under the requirements of Appendix B of 14 CFR part 29, Amendment 29–47.

The use of dedicated AFCS upper modes, in which a fully coupled autopilot provides operational SAR profiles, is needed for SAR operations conducted over water in offshore areas clear of obstructions. The SAR modes enable the helicopter pilot to fly fully coupled maneuvers, to include predefined search patterns during cruise flight, and to transition from cruise flight to a stabilized hover and departure (transition from hover to cruise flight). The SAR AFCS also includes an auxiliary crew control that allows another crewmember (such as a hoist operator) to have limited authority to control the helicopter’s longitudinal and lateral position during hover operations.

Flight operations conducted over water at night may have an extremely limited visual horizon with little visual reference to the surface even when conducted under Visual Meteorological Conditions (VMC). Consequently, the certification requirements for SAR modes must meet Appendix B to 14 CFR part 29. While Appendix B to 14 CFR part 29 prescribes airworthiness criteria for instrument flight, it does not consider operations below instrument flight minimum speed (V_{MIN}), whereas the SAR modes allow for coupled operations at low speed, all-azimuth flight to zero airspeed (hover).

Since SAR operations have traditionally been a public use mission, the use of SAR modes in civil operations requires special airworthiness standards (special conditions) to ensure that a level of safety consistent with Category A and Instrument Flight Rule (IFR) certification is maintained. In this regard, 14 CFR part 29 lacks adequate airworthiness standards for AFCS SAR mode certification to include flight characteristics, performance, and installed equipment and systems.

Type Certification Basis

Under 14 CFR 21.101, Sikorsky must show the S–92A, as changed, continues to meet the applicable provisions of the rules incorporated by reference in TC No. R00024BO or the applicable regulations in effect on the date of application for the change. The regulations incorporated by reference in the TC are commonly referred to as the “original type certification basis.” The regulations incorporated by reference in R00024BO are as follows:

(a) 14 CFR part 29 Amendments 29–1 to 29–47, inclusive.
(b) 14 CFR part 36 Amendment 20.
(c) Equivalent Safety Findings:
   (1) Number TC0309BO–R/F–1.
   (ii) 14 CFR 29.175 Static longitudinal stability.
   (ii) 14 CFR 29.175 Demonstration of static longitudinal stability.
   (2) Number TC0309BO–R/F–4.
   (i) 14 CFR 29.177 Static directional stability.
   (3) Number TC0309BO–R/P–1.
   (4) Number TC0309BO–R/P–5.
   (i) 14 CFR 29.1181(a)(4) Designated Fire Zones; Regions Included.
   (d) Special Conditions:
      (2) No. 29–008–SC for High Intensity Radiated Frequency.
   (e) Noise Control Act of 1972.
   (f) Compliance with the following optional requirements has been established:
      (2) No. 29–008–SC for High Intensity Radiated Frequency.
   (g) Monitoring of the preselected hover height with automatic increase in collective if the aircraft height drops below the safe minimum height.

These SAR modes are intended to be used over large bodies of water in areas clear of obstructions. Further, use of the SAR modes that transition down from cruise to hover will include operation at airspeeds below V_{MIN}.

The SAR system only entails navigation, flight control, and coupled AFCS operation of the helicopter. The system does not include the extra equipment that may be required for over

Supplementary Information:

The Sikorsky model S–92A helicopter will incorporate the following novel or unusual design features:

The SAR system is a navigation system that takes into account the helicopter’s position and orientation, coupled with the flight control system, to provide a coordinated movement of the helicopter. This system is designed to ensure that the helicopter remains stable and in control during SAR operations.

The SAR system is designed to handle a wide range of environmental conditions, such as strong winds and rough water, to ensure the safety and effectiveness of SAR operations.

The SAR system is intended to assist rescue operations, providing accurate information about the location of the emergency and the best course of action for the rescue team.

The SAR system is designed to be user-friendly, with clear and intuitive controls that can be easily operated by both the pilot and the crew.

The SAR system is intended to be integrated with other systems on the helicopter, allowing for seamless operation and improved efficiency.

The SAR system is designed to be flexible, allowing for modifications and updates as technology advances and operational requirements change.

The SAR system is designed to be robust, able to withstand harsh conditions and maintain its performance even under extreme circumstances.

The SAR system is designed to be adaptable, allowing for customization to meet the specific needs of different rescue scenarios and locations.

The SAR system is designed to be cost-effective, balancing the need for advanced technology with the practical considerations of deployment and maintenance.
water flight or external loads to meet other operational requirements.

Comments Invited

We invite interested people to take part in this rulemaking by sending written comments, data, or views. The most helpful comments reference a specific portion of the special conditions, explain the reason for any recommended change, and include supporting data.

We will file in the special conditions docket all comments we receive, as well as a report summarizing each substantive public contact with FAA personnel about these special conditions. You can inspect the docket before and after the comment closing date. If you wish to review the docket in person, go to the address in the

ADDRESSSES section of this document between 8:30 a.m. and 4 p.m., Monday through Friday, except Federal holidays.

We will consider all comments we receive by the closing date for comments. We will consider comments filed late if it is possible to do so without incurring additional expense or delay. We may change these special conditions based on the comments we receive.

If you want us to let you know we received your mailed comments on these special conditions, send us a pre-addressed, stamped postcard on which the docket number appears. We will stamp the date on the postcard and mail it back to you.

Conclusion

This action affects only certain novel or unusual design features on one model of helicopter. It is not a rule of general applicability.

Normally, in adopting special conditions, the FAA provides notice and an opportunity for comment before issuing the final special conditions. However, because the delivery date of the Sikorsky model S–92A helicopter is imminent, we find that it is impracticable to provide prior notice because a delay would be contrary to the public interest. The FAA therefore finds that good cause exists for making these special conditions effective upon issuance.

Applicability

These special conditions apply to the Sikorsky model S–92A helicopters. Should Sikorsky apply at a later date for a change to the TC to include another model incorporating the same novel or unusual design feature, these special conditions would apply to that model as well.

List of Subjects in 14 CFR Part 29

Aircraft, Aviation safety.

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701–44702, 44704.

The Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for Sikorsky Aircraft Corporation model S–92A helicopters when the optional Search and Rescue (SAR) Automatic Flight Control System (AFCS) is installed:

In addition to the part 29 certification requirements for Category A and helicopter instrument flight (Appendix B), the following additional requirements must be met for certification of the SAR AFCS:

(a) SAR Flight Modes. The coupled SAR flight modes must provide:

(1) Safe and controlled flight in three axes (lateral and longitudinal position/speed and height/vertical speed) at all airspeeds from instrument flight minimum speed (V_{min}^i) to a hover (within the maximum demonstrated wind envelope).

(2) Automatic transition to the helicopter instrument flight (Appendix B) envelope as part of the normal SAR mode sequencing.

(3) A pilot-selectable Go-Around mode that safely interrupts any other coupled mode and automatically transitions to the helicopter instrument flight (Appendix B) envelope.

(4) A means to prevent unintended flight below a safe minimum height. Pilot-commanded descent below the safe minimum height is acceptable provided the alerting requirements in [b](7)(i) are sufficient to alert the pilot of this descent below safe minimum height.

(b) SAR Mode System Architecture.

To support the integrity of the SAR modes, the following system architecture is required:

(1) A system for limiting the engine power demanded by the AFCS when any of the automatic piloting modes are engaged, so FADEC power limitations, such as torque and temperature, are not exceeded.

(2) A system providing the aircraft height above the surface and final pilot-selected height at a location on the instrument panel in a position acceptable to the FAA that will make it plainly visible to and usable by any pilot at their station.

(3) A system providing the aircraft heading and the pilot-selected heading at a location on the instrument panel in a position acceptable to the FAA that will make it plainly visible to and usable by any pilot at their station.

(4) A system providing the aircraft longitudinal and lateral ground speeds and the pilot-selected longitudinal and lateral ground speeds when used by the AFCS in the flight envelope where airspeed indications become unreliable. This information must be presented at a location on the instrument panel in a position acceptable to the FAA that is plainly visible to and usable by any pilot at their station.

(5) A system providing wind speed and wind direction when automatic piloting modes are engaged or transitioning from one mode to another.

(6) A system that monitors for flight guidance deviations and failures with an appropriate alerting function that enables the flight crew to take appropriate corrective action.

(7) The alerting system must provide visual or aural alerts, or both, to the flight crew under any of the following conditions:

(i) When the stored or pilot-selected safe minimum height is reached.

(ii) When a SAR mode system malfunction occurs.

(iii) When the AFCS changes modes automatically from one SAR mode to another.

Note: For normal transitions from one SAR mode to another, a single visual or aural alert may suffice. For a SAR mode malfunction or a mode having a time-critical component, the flight crew alerting system must activate early enough to allow the flight crew to take timely and appropriate action. The alerting system means must be designed to alert the flight crew in order to minimize crew errors that could create an additional hazard.

(8) The SAR system hoist operator control is considered a flight control with limited authority and must comply with the following:

(i) The hoist operator control must be designed and located to provide for convenient operation and to prevent confusion and inadvertent operation.

(ii) The helicopter must be safely controllable by the hoist operator control throughout the range of that control.

(iii) The hoist operator control may not interfere with the safe operation of the helicopter.

(iv) Pilot and copilot flight controls must be able to smoothly override the control authority of the hoist operator control, without exceptional piloting skill, alertness, or strength, and without the danger of exceeding any other limitation because of the override.

(9) The reliability of the AFCS must be related to the effects of its failure.
The occurrence of any failure condition that would prevent continued safe flight and landing must be extremely improbable. For any failure condition of the AFCS which is not shown to be extremely improbable: (i) The helicopter must be safely controllable and capable of continued safe flight without exceptional piloting skill, alertness, or strength. Additional unrelated probable failures affecting the control system must be evaluated. (ii) The AFCS must be designed so that it cannot create a hazardous deviation in the flight path or produce hazardous loads on the helicopter during normal operation or in the event of a malfunction or failure, assuming corrective action begins within an appropriate period of time. Where multiple systems are installed, subsequent malfunction conditions must be evaluated in sequence unless their occurrence is shown to be improbable. (10) A functional hazard assessment (FHA) and a system safety assessment must be provided to address the failure conditions associated with SAR operations. For SAR catastrophic failure conditions, changes may be required to the following: (i) System architecture. (ii) Software and complex electronic hardware design assurance levels. (iii) HIRF test levels. (iv) Instructions for continued airworthiness. The assessments must consider all the systems required for SAR operations to include the AFCS, all associated AFCS sensors (for example, radio altimeter), and primary flight displays. Electrical and electronic systems with SAR catastrophic failure conditions (for example, AFCS) must comply with the § 29.1317(a)(4) High Intensity Radiated Field (HIRF) requirements. (c) SAR Mode Performance Requirements. (1) The SAR modes must be demonstrated in the requested flight envelope for the following minimum sea-state and wind conditions: (i) Sea State: Wave height of 2.5 meters (8.2 feet), considering both short and long swells. (ii) Wind: 25 knots headwind; 17 knots for all other azimuths. (2) The selected hover height and hover velocity must be captured (to include the transition from one captured mode to another captured mode) accurately and smoothly and not exhibit any significant overshoot or oscillation. (3) For any single failure or any combination of failures of the AFCS that is not shown to be extremely improbable, the recovery must not result in a loss of height greater than half of the minimum use height (MUH) with a minimum margin of 15 feet above the surface. MUH is the minimum height at which any SAR AFCS mode can be engaged. (4) The SAR mode system must be usable up to the maximum certified gross weight of the aircraft or to the lower of the following weights: (i) Maximum emergency flotation weight. (ii) Maximum hover Out-of-Ground Effect (OGE) weight. (iii) Maximum demonstrated weight. (d) Flight Characteristics. (1) The basic aircraft must meet all the part 29 airworthiness criteria for helicopter instrument flight (Appendix B). (2) For SAR mode coupled flight below VMNS, at the maximum demonstrated winds, the helicopter must be able to maintain any required flight condition and make a smooth transition from any flight condition to any other flight condition without requiring exceptional piloting skill, alertness, or strength, and without exceeding the limit load factor. This requirement also includes aircraft control during the hoist operator’s control. (3) For SAR modes at airspeeds below VMNS the following requirements of Appendix B to part 29 must be met and will be used as an extension to the IFR certification envelope of the basic aircraft: (i) Static Longitudinal Stability: the requirements of paragraph IV of Appendix B are not applicable. (ii) Static Lateral-Directional Stability: The requirements of paragraph V of Appendix B are not applicable. (iii) Dynamic Stability: The requirements of paragraph VI of Appendix B are replaced with the following two paragraphs: (A) Any oscillation must be damped and any aperiodic response must not double in amplitude in less than 10 seconds. This requirement must also be met with degraded upper mode(s) of the AFCS. An “upper mode” is a mode that utilizes a fully coupled autopilot to provide an operational SAR profile. (B) After any upset, the AFCS must return the aircraft to the last commanded position within 10 seconds or less. (4) With any of the upper mode(s) of the AFCS engaged the pilot must be able to manually recover the aircraft and transition to the normal (Appendix B) IFR flight profile envelope without exceptional skill, alertness, or strength. (e) One-Engine Inoperative (OEI) Performance Information. (1) The following performance information must be provided in the Rotorcraft Flight Manual Supplement (RFMS): (i) OEI performance information and emergency procedures, providing the maximum weight that will provide a minimum clearance of 15 feet above the surface, following failure of the critical engine in a hover. The maximum weight must be presented as a function of the hover height for the temperature and pressure altitude range requested for certification. The effects of wind must be reflected in the hover performance information. (ii) Hover OGE performance with the critical engine inoperative for OEI continuous and time-limited power ratings for those weights, altitudes, and temperatures for which certification is requested. Note: These OEI performance requirements do not replace performance requirements that may be needed to comply with the airworthiness or operational standards (§ 29.865 or 14 CFR part 133) for external loads or human external cargo. (f) RFMS. (1) The RFMS must contain, at a minimum: (i) Limitations necessary for safe operation of the SAR system to include: (A) Minimum crew requirements. (B) Maximum SAR weight. (C) Engagement criteria for each of the SAR modes to include MUH (as determined in subparagraph (c)(3)). (ii) Normal and emergency procedures for operation of the SAR system (to include operation of the hoist operator control), with AFCS failure modes, AFCS degraded modes, and engine failures. (iii) Performance information: (A) OEI performance and height-loss. (B) Hover OGE performance information, utilizing OEI continuous and time-limited power ratings. (C) The maximum wind envelope demonstrated in flight test. (g) Flight Demonstration. (1) Before approval of the SAR system, an acceptable flight demonstration of all the coupled SAR modes is required. (2) The AFCS must provide fail-safe operations during coupled maneuvers. The demonstration of fail-safe operations must include a pilot workload assessment associated with manually flying the aircraft to an altitude greater than 200 feet above the surface and an airspeed of at least the best rate of climb airspeed (Vy). (3) For any failure condition of the SAR system not shown to be extremely improbable, the pilot must be able to
make a smooth transition from one flight mode to another without exceptional piloting skill, alertness, or strength.

(4) Failure conditions that are not shown to be extremely improbable must be demonstrated by analysis, ground testing, or flight testing. For failures demonstrated in flight, the following normal pilot recovery times are acceptable:

(i) Transition modes (Cruise-to-Hover/Hover-to-Cruise) and Hover modes: Normal pilot recognition plus 1 second.

(ii) Cruise modes: Normal pilot recognition plus 3 seconds.

(5) All AFCS malfunctions must include evaluation at the low-speed and high-power flight conditions typical of SAR operations. Additionally, AFCS hard-over, slow-over, and oscillatory malfunctions, particularly in yaw, require evaluation. AFCS malfunction testing must include a single or a combination of failures (for example, erroneous data from and loss of the radio altimeter, attitude, heading, and altitude sensors) which are not shown to be extremely improbable.

(6) The flight demonstration must include the following environmental conditions:

(i) Swell into wind.

(ii) Swell and wind from different directions.

(iii) Cross swell.

(iv) Swell of different lengths (short and long swell).

Issued in Fort Worth, Texas, on December 3, 2010.

Kimberly K. Smith, Manager, Rotorcraft Directorate, Aircraft Certification Service.

[FR Doc. 2010–31188 Filed 12–10–10; 8:45 am]