

- I.D.7 The Boiling-Water Reactor Channel Box Under Spray Cooling.
- II.1.a The documentation requirements in this paragraph should include a description of each evaluation model used for estimation of the effects of crud deposits on fuel pins.

The Petitioner's Request

In his supplemental petition (PRM-50-73A), the petitioner requests that the NRC revise its regulations on the acceptance criteria for emergency core cooling systems for light-water nuclear power reactors to address the impact severe crud buildup will have on core coolability during normal reactor operations.

The petitioner states that a certain licensed power reactor has operated with unusually heavy crud deposits within several fuel bundles. The petitioner states that these deposits were found and at least partially classified during a refueling outage. The petitioner believes that if these deposits had continued to build during normal reactor operation at power, the unusually heavy crud deposits would have become severe crud deposits. Blockage of the flow channels within the fuel bundles would likely have developed. The petitioner believes that severe crud deposits within the fuel bundles can lead to a loss of coolability with consequent overheating of zirconium cladding within the bundles, autocatalytic zirconium-water reactions of the fuel cladding, chemical reactions between the fuel cladding and uranium oxide fuel pellets, initiation of zirconium water reactions involving zirconium core structures such as fuel bundle spacer grids and channel boxes, melting of certain control element materials, melting of braze materials in certain fuel bundle spacer grids, metallurgical reactions between certain fuel bundle spacer grid springs and the zirconium cladding on the fuel pins, and additional sources of structural degradation. The petitioner states that these factors can initiate substantial and rapid localized core melting while the LWR is at power. The petitioner states that if the LWR is then shut down, the core meltdown may rapidly propagate among the fuel bundles and core structures with sequential and parallel destruction of the barriers that constitute defense in depth. Thus, the single entity, unusually heavy crud deposits on the fuel pins, might be only one step before unusually heavy crud deposits thicken and become severe crud deposits. The petitioner states that severe crud deposits then threaten the integrity of all of the barriers that in total constitute the defense in depth.

The petitioner states that performance-based experience reveals that when unusually heavy crud deposition on fuel bundles occurs during normal operation of an LWR, there are likely to be indications of fuel element cladding defects by increases in the offgas activity. However, the petitioner states that this increase in the offgas activity is not regarded as an indicator of a possible heavy crud deposition. The petitioner believes that an LWR may be operated within its Licensing Basis and the Technical Specifications until the transition from unusually heavy crud deposition to severe crud deposition is effected. The petitioner believes that at this point it is likely that rapid localized core melting will be initiated while the LWR is at power. The petitioner also believes that there will likely be delays (several seconds) before the LWR is shut down. The petitioner believes that by then the rapid propagation of the meltdown will likely be well underway and it will likely continue even though the LWR is shut down.

The petitioner requests that elements in § 50.46 and the following paragraphs in Appendix K to part 50, and perhaps other regulations, be revised to include the impact of crud deposits on the fuel bundles during normal operation:

- I.B. Swelling and Rupture of the Cladding and Fuel Rod Thermal Parameters;
 - I.C.2 Frictional Pressure Drops;
 - I.C.4 Critical Heat Flux;
 - I.C.5 Post-CHF Heat Transfer Correlations;
 - I.C.7 Core Flow Distribution During Blowdown;
 - I.D.3 Calculation of Reflood Rate for Pressurized Water Reactors;
 - I.D.6 Convective Heat Transfer Coefficients for Boiling Water Reactor Fuel Rods Under Spray Cooling; and
 - I.D.7 The Boiling-Water Reactor Channel Box Under Spray Cooling.
- II.1.a The documentation requirements in this paragraph should include a description of each evaluation model used for estimation of the effects of crud deposits on fuel pins.

Dated at Rockville, Maryland, this 22nd day of January 2002.

For the Nuclear Regulatory Commission.
Annette L. Vietti-Cook,
Secretary of the Commission.

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 23

[Docket No. CE171; Notice No. 23-01-04-SC]

Special Conditions: Eclipse Aviation Corporation, Model 500; Fire Extinguishing System for Aft Mounted Engine Installations

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed special conditions.

SUMMARY: This action proposes special conditions for the Eclipse Aviation Corporation Model 500 airplane. This airplane design includes aft mounted turbine engines. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These proposed special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

DATES: Comments must be received on or before February 28, 2002.

ADDRESSES: Comments on this proposal may be mailed in duplicate to: Federal Aviation Administration, Regional Counsel, Attention: Rules Docket No. CE171, 901 Locust, Room 506, Kansas City, Missouri 64106; or delivered in duplicate to the Regional Counsel at the above address. Comments must be marked: Docket No. CE171. Comments may be inspected in the Rules Docket weekdays, except Federal holidays, between 7:30 a.m. and 4 p.m.

FOR FURTHER INFORMATION CONTACT: Mr. Lowell Foster, Federal Aviation Administration, Aircraft Certification Service, Small Airplane Directorate, ACE-111, 901 Locust Street, Kansas City, Missouri, 816-329-4111, fax 816-329-4090.

SUPPLEMENTARY INFORMATION:

Comments Invited

Interested persons are invited to participate in the making of these proposed special conditions by submitting such written data, views, or arguments as they may desire. Communications should identify the regulatory docket or notice number and be submitted in duplicate to the address specified above. All communications received on or before the closing date for comments will be considered by the Administrator. The proposals described

in this action may be changed in light of the comments received. All comments received will be available in the Rules Docket for examination by interested persons, both before and after the closing date for comments. A report summarizing each substantive public contact with FAA personnel concerning this rulemaking will be filed in the docket. Persons wishing the FAA to acknowledge receipt of their comments submitted in response to this action must include with those comments a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket No. CE171." The postcard will be date stamped and returned to the commenter.

Background

On November 9, 2000, Eclipse Aviation Corporation applied for a type certificate for their new Model 500.

The Model 500 design includes turbine engines mounted aft on the fuselage, which means early visual detection of engine fire is precluded. The applicable existing regulations do not require fire extinguishing systems for engines. Aft mounted turbine engine installations, along with the need to protect such installed engines from fires, were not envisioned in the development of part 23; therefore, a special condition for a fire extinguishing system for the engines of the Model 500 is required.

Type Certification Basis

Under the provisions of 14 CFR 21.17, Eclipse Aviation Corporation must show that the Model 500 meets the following:

(1) Applicable provisions of 14 CFR part 23, effective December 18, 1964, as amended by Amendments 23-1 through 23-54 (September 14, 2000).

(2) Part 34 of the Federal Aviation Regulations effective September 10, 1990, plus any amendments in effect on the date of type certification.

(3) Part 36 of the Federal Aviation Regulations effective December 1, 1969, as amended by Amendment 36-1 through the amendment in effect on the date of type certification.

(4) Noise Control Act of 1972.

(5) Special Conditions:

a. Special Conditions for Protection from High Intensity Radiated Fields (HIRF) will be required.

b. Special Conditions for aft mounted engines to include Engine Fire Extinguishing System or Fire Detection and Control will be required. A fire extinguishing system is not required if Eclipse Aviation Corporation can show that a fire that starts in any engine compartment is detectable and controllable.

c. Special Conditions for an Electronic Engine Control System will be required.

(6) Exemptions approved by the FAA (14 CFR 11.27).

(7) Equivalent Level of Safety Findings, as necessary.

If the Administrator finds that the applicable airworthiness regulations (*i.e.*, part 23) do not contain adequate or appropriate safety standards for the Model 500 because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

In addition to the applicable airworthiness regulations and special conditions, the Model 500 must comply with the part 23 fuel vent and exhaust emission requirements of 14 CFR part 34 and the part 23 noise certification requirements of 14 CFR part 36, and the FAA must issue a finding of regulatory adequacy pursuant to section 611 of Public Law 92-574, the "Noise Control Act of 1972."

Special conditions, as appropriate, as defined in § 11.19, are issued in accordance with § 11.38 after public notice and become part of the type certification basis in accordance with § 21.17(a)(2).

Special conditions are initially applicable to the model for which they are issued. Should the type certificate for that model be amended later to include any other model that incorporates the same novel or unusual design feature, the same novel or unusual design feature, the special conditions would also apply to the other model under the provisions of § 21.101.

Novel or Unusual Design Features

The Eclipse Model 500 will incorporate the following novel or unusual design features: Turbine engines mounted on the aft of the fuselage. Aft mounted turbine engine installations need to be protected from fire since early visual detection of engine fires is not possible. This notice proposes a special condition for a fire extinguishing system for the engines of the Model 500.

Applicability

As discussed above, these special conditions are applicable to the Eclipse Model 500. Should Eclipse Aviation Corporation apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design feature, the special conditions would apply to that model as well under the provisions of § 21.101.

Conclusion

This action affects only certain novel or unusual design features on one model of airplanes. It is not a rule of general applicability, and it affects only the applicant who applied to the FAA for approval of these features on the airplane.

List of Subjects in 14 CFR Part 23

Aircraft, Aviation safety, Signs and symbols.

Citation

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(g), 40113 and 44701; 14 CFR 21.16 and 21.17; and 14 CFR 11.38 and 11.19.

The Proposed Special Conditions

Accordingly, the Federal Aviation Administration (FAA) proposes the following special conditions as part of the type certification basis for the Eclipse Aviation Corporation Model 500.

Engine Fire Extinguishing System

(a) Fire extinguishing systems must be installed and compliance must be shown with the following:

(1) Except for combustor, turbine, and tailpipe sections of turbine-engine installations that contain lines or components carrying flammable fluids for which a fire originating in these sections can be controllable, a fire extinguisher system must serve each engine compartment.

(2) The fire extinguishing system, the quantity of the extinguishing agent, the rate of discharge, and the discharge distribution must be adequate to extinguish fires. An individual "one shot" system may be used.

(3) The fire extinguishing system for a nacelle must be able to simultaneously protect each compartment of the nacelle for which protection is provided.

(b) Fire extinguishing agents must meet the following requirements:

(1) Be capable of extinguishing flames emanating from any burning of fluids or other combustible materials in the area protected by the fire extinguishing system.

(2) Have thermal stability over the temperature range likely to be experienced in the compartment in which they are stored; and

(3) If any toxic extinguishing agent is used, provisions must be made to prevent harmful concentrations of fluid or vapors from entering any personnel compartment even though a defect may exist in the extinguishing system.

(c) Fire extinguishing agent containers must meet the following requirements:

(1) Have a pressure relief to prevent bursting of the container by excessive internal pressures.

(2) The discharge end of each discharge line from a pressure relief connection must be located so the discharge of the fire extinguishing agent would not damage the airplane. The line must also be located or protected to prevent clogging caused by ice or other foreign matter.

(3) A means must be provided for each fire extinguishing agent container to indicate that the container has discharged or that the charging pressure is below the established minimum necessary for proper functioning.

(4) The temperature of each container must be maintained, under intended operating conditions, to prevent the pressure in the container from falling below that necessary to provide an adequate rate of discharge, or rising high enough to cause premature discharge; and

(5) If a pyrotechnic capsule is used to discharge the fire extinguishing agent each container must be installed so that temperature conditions will not cause hazardous deterioration of the pyrotechnic capsule.

(d) Fire extinguisher system materials must meet the following requirements:

(1) No material in any fire extinguishing system may react chemically with any extinguishing agent so as to create a hazard, and

(2) Each system component in an engine compartment must be fireproof.

Issued in Kansas City, Missouri on January 14, 2002.

James E. Jackson,

Acting Manager, Small Airplane Directorate, Aircraft Certification Service.

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DEPARTMENT OF THE TREASURY

Internal Revenue Service

26 CFR Part 1

[REG-107100-00]

RIN 1545-AY26

Disallowance of Deductions and Credits for Failure To File Timely Return

AGENCY: Internal Revenue Service (IRS), Treasury.

ACTION: Notice of proposed rulemaking by cross-reference to temporary regulations and notice of public hearing.

SUMMARY: This document contains proposed regulations relating to the

disallowance of deductions and credits for nonresident alien individuals and foreign corporations that fail to file a timely U.S. income tax return. The current regulations permit nonresident aliens and foreign corporations the benefit of deductions and credits only if they timely file a U.S. income tax return in accordance with subtitle F of the Internal Revenue Code, unless the Commissioner waives the filing deadlines. The temporary regulations revise the waiver standard. The text of the temporary regulations on this subject in this issue of the **Federal Register** also serves as the text of these proposed regulations set forth in this cross-referenced notice of proposed rulemaking. This document also provides notice of a public hearing on these proposed regulations.

DATES: Written comments must be received by April 29, 2002. Requests to speak and outlines of topics to be discussed at the public hearing scheduled for June 3, 2002, at 10 a.m. must be received by May 13, 2002.

ADDRESSES: Send submissions to: CC:ITA:RU (REG-107100-00), room 5226, Internal Revenue Service, POB 7604, Ben Franklin Station, Washington, DC 20044. Submissions may be hand delivered Monday through Friday between the hours of 8 a.m. and 5 p.m. to: CC:ITA:RU (REG-107100-00), Courier's Desk, Internal Revenue Service, 1111 Constitution Avenue, NW., Washington, DC. Alternatively, taxpayers may submit comments electronically via the Internet by selecting the "Tax Regs" option on the IRS Home Page, or by submitting comments directly to the IRS Internet site at http://www.irs.ustreas.gov/tax_regs/regslst.html. The public hearing will be held in the auditorium, Internal Revenue Building, 1111 Constitution Avenue, NW., Washington, DC.

FOR FURTHER INFORMATION CONTACT: Concerning the regulations, Nina E. Chowdhry, (202) 622-3880; concerning submissions, the hearing, and/or to be placed on the building access list to attend the hearing, Donna Poindexter, (202) 622-7180 (not toll-free numbers).

SUPPLEMENTARY INFORMATION:

Background

Temporary regulations in the Rules and Regulations section of this issue of the **Federal Register** amend the Income Tax Regulations (26 CFR part 1) relating to sections 874 and 882. These temporary regulations contain rules relating to the disallowance of deductions and credits for nonresident alien individuals and foreign

corporations that fail to file a timely U.S. income tax return.

Special Analyses

It has been determined that this notice of proposed rulemaking is not a significant regulatory action as defined in Executive Order 12866. Therefore, a regulatory assessment is not required. It has also been determined that section 553(b) of the Administrative Procedure Act (5 U.S.C. chapter 5) does not apply to these regulations and, because these regulations do not impose on small entities a collection of information requirement, the Regulatory Flexibility Act (5 U.S.C. chapter 6) does not apply. Therefore, a Regulatory Flexibility Analysis is not required. Pursuant to section 7805(f) of the Internal Revenue Code, this notice of proposed rulemaking will be submitted to the Chief Counsel for Advocacy of the Small Business Administration for comment on its impact on small business.

Comments and Public Hearing

Before these proposed regulations are adopted as final regulations, consideration will be given to any electronic or written comments (a signed original and eight (8) copies) that are submitted timely to the IRS. Treasury and the IRS request comments on the clarity of the proposed rule and how it may be made easier to understand. All comments will be made available for public inspection and copying.

A public hearing has been scheduled for June 3, at 10 a.m., in the auditorium, Internal Revenue Building, 1111 Constitution Ave., NW., Washington, DC. All visitors must present photo identification to enter the building. Because of access restrictions, visitors will not be admitted beyond the immediate entrance area more than 15 minutes before the hearing starts. For information about having your name placed on the building access list to attend the hearing, see the **FOR FURTHER INFORMATION CONTACT** section of this preamble.

The rules of 26 CFR 601.601(a)(3) apply to this hearing. Persons who wish to present oral comments at the hearing must submit electronic or written comments and an outline of the topics to be discussed and the time to be devoted to each topic (signed original and eight (8) copies) by April 29, 2002. A period of 10 minutes will be allotted to each person for making comments. An agenda showing the scheduling of the speakers will be prepared after the deadline for receiving outlines has passed. Copies of the agenda will be available free of charge at the hearing.