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[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Parts 401 and 450

[Docket No.: FAA-2026-9942; Notice No. 26-20]

RIN 2120-AM33

Conditional Expected Casualty Exception for Failures Resulting in an Uncontrolled Atmospheric Return

AGENCY: Federal Aviation Administration (FAA), U.S. Department of Transportation (DOT).

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: FAA proposes to amend its commercial space launch and reentry licensing regulations to streamline the licensing process and reduce regulatory burden for license applicants. Specifically, FAA proposes to allow a launch and reentry vehicle operator to protect against high consequence events during an uncontrolled atmospheric return by showing that there would be sufficient breakup of the vehicle to ensure protection against a single event expected to produce multiple casualties.

DATES: Send comments on or before [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*].

ADDRESSES: Send comments identified by docket number FAA-2026-9942 using any of the following methods:

- Federal eRulemaking Portal: Go to www.regulations.gov and follow the online instructions for sending your comments electronically.
- Mail: Send comments to Docket Operations; U.S. Department of Transportation (DOT), 1200 New Jersey Avenue, SE, West Building, 5th Floor (W58-213), Washington, DC 20590-0001.

- Hand Delivery or Courier: Take comments to Docket Operations in Room W58-213 of the West Building, 5th Floor at 1200 New Jersey Avenue, SE, Washington, DC 20590 between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.
- Fax: Fax comments to Docket Operations at (202) 493-2251.

Privacy: In accordance with 5 U.S.C. 553(c), DOT solicits comments from the public to inform its rulemaking process better. DOT posts these comments, without edit, including any personal information the commenter provides, to www.regulations.gov, as described in the system of records notice (DOT/ALL-14 FDMS), which can be reviewed at www.dot.gov/privacy.

Docket: Background documents or comments received may be read at www.regulations.gov at any time. Follow the online instructions for accessing the docket or go to the Docket Operations in Room W58-213 of the West Building 5th Floor at 1200 New Jersey Avenue, SE, Washington, DC 20590 between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Lisa E. Cacciatore, Office of Commercial Space Transportation, Federal Aviation Administration, 1200 New Jersey Avenue SE, Washington, DC 20590; telephone (202) 880-1489; email Lisa.E.Cacciatore@faa.gov.

SUPPLEMENTARY INFORMATION:

I. Overview

In accordance with Executive Order (E.O.) 14335 "Enabling Competition in the Commercial Space Industry," FAA proposes to amend its commercial space launch and reentry regulations at 14 CFR part 450 to further streamline the commercial licensing process. Specifically, FAA proposes to add an option by which applicants may comply with the high consequence event protection requirements in § 450.101(c). The proposed

rule would allow an applicant to meet the requirement for an uncontrolled atmospheric return (UAR), commonly called a "random reentry," by showing that the UAR would result in sufficient breakup of the vehicle, including all vehicle components and undeployed payloads, to ensure protection against a single event expected to produce multiple casualties.

II. Authority for This Rulemaking

The Commercial Space Launch Act of 1984, as amended and codified at 51 U.S.C. 50901–50924, authorizes the Secretary of Transportation to oversee, license, and regulate commercial launch and reentry activities, and the operation of launch and reentry sites within the United States (U.S.) or as carried out by U.S. citizens. Section 50905 directs the Secretary to exercise this responsibility consistent with public health and safety, safety of property, and the national security and foreign policy interests of the United States. In addition, section 50903 requires the Secretary to encourage, facilitate, and promote commercial space launches and reentries by the private sector. As codified in 49 CFR 1.83(b), the Secretary has delegated authority to the FAA Administrator to carry out these functions.

III. Background

FAA has established commercial space regulations governing licensing of launch and reentry in 14 CFR chapter III. On December 10, 2020, FAA issued a final rule consolidating all substantive launch and reentry licensing regulations into a new part 450 (85 FR 79566) that went into effect on March 10, 2021.

On August 13, 2025, the President issued E.O. 14335, "Enabling Competition in the Commercial Space Industry," requiring the Secretary of Transportation to "reevaluate, amend, or rescind" the part 450 regulations for the purpose of further streamlining the commercial licensing process. This proposed rule is being published in furtherance of this executive order.

In accordance with current FAA guidance, high consequence events include incidents that could involve multiple casualties, massive toxic exposures, extensive property or environmental damage, or events that jeopardize the national security or foreign policy interests of the United States.[1] The term "high consequence events" does not generally include incidents that result in only one casualty. The potential for any casualties remains covered by the individual and collective risk criteria in § 450.101(a) and (b). The objective of high consequence protection is to provide additional constraints beyond the individual and collective risk criteria.

Currently, in accordance with § 450.101(c), an operator must protect against a high consequence event by one of three methods: flight abort, ensuring that conditional expected casualties (CE_C) would fall below a specified threshold, or demonstrated reliability. However, these three methods are not well-attuned for protection against high consequence events during a UAR. A UAR, commonly called a "random reentry," occurs when a vehicle makes an uncontrolled descent from orbit as a result of natural orbital decay, rather than as a result of action by the operator.

Currently, no UARs are close to attaining the demonstrated reliability necessary to protect against high consequence events, which makes compliance with § 450.101(c)(3) improbable at this time. Likewise, any vehicle flight that could be aborted in accordance with § 450.101(c)(1) is not a UAR because the operator is able to accomplish a controlled end to the flight; a UAR is always an uncontrolled end to flight. Thus, operators currently must comply with the CE_C requirement in § 450.101(c)(2), which can be a labor-intensive calculation.

IV. Discussion of the Proposal

[1] See Advisory Circular 450.101-1B, "High Consequence Event Protection," dated May 03, 2024, available at: www.faa.gov/documentLibrary/media/Advisory_Circular/AC_450.101-1B.pdf; see also Footnote 65 in final rule titled "Streamlined Launch and Reentry Requirements" (85 FR 79566).

The proposed rule would amend § 450.101(c)(2) to allow an operator to demonstrate protection against a high consequence event resulting from a UAR by showing that the UAR would result in sufficient breakup of the vehicle, including all vehicle components and payloads, to ensure protection against a single event expected to produce multiple casualties. The proposed method of demonstrating compliance to high consequence events for UARs provides an equivalent level of safety to the current requirements.

An uncontrolled atmospheric return is fundamentally a return in which the operator has no control over the eventual impact site of the vehicle. Accordingly, the proposal would define "uncontrolled atmospheric return" in § 401.7 to include two characteristics that limit the definition to cover only those returns over which the operator exercises no control. The first proposed defining characteristic of a UAR would be that only natural forces cause the orbit of an object to decay and eventually impact the Earth or burn up in the atmosphere. Natural forces that cause orbital decay include aerodynamic drag, gravitational variations, solar radiation, and third-body gravitational effects. A perigee of 70 nautical miles (nm) or greater is considered the threshold of being in orbit (see definition of "Deorbit" in § 401.7). Thus, a scenario in which propulsion (which is not a natural force) reduces the perigee below the 70 nm threshold would not be considered a UAR. However, a propulsion system that fails before the perigee reaches the threshold could result in a UAR. The second proposed defining characteristic of a UAR would be that the operator lacks control over the trajectory. Thus, a flight that uses orientation to control aerodynamic forces to reduce the perigee below the 70 nm threshold would not be considered a UAR. Likewise, a vehicle that falls out of orbit due to natural forces, but which an operator may abort or otherwise guide, would not be considered a UAR.

The proposed method of demonstrating compliance to high consequence events at proposed § 450.101(c)(2)(ii) would only be available for UARs (as opposed to controlled returns) because UARs have unique properties. First, the impact probability distributions from a UAR, which are the subject of § 450.123(b), are extremely large. It is most likely that debris would impact in areas with relatively low population density because high-density populations are concentrated in small areas. In addition, when multiple fragments survive deorbit during a UAR, they are generally dispersed over a large geographical area, so it is unlikely that separate fragments would injure multiple people from the same UAR as long as the collective risk safety criterion in § 450.101(a) or (b) is satisfied.

The proposed requirement for operators to demonstrate sufficient breakup of the vehicle acts as an added layer of protection against multiple casualty events. Typically, deorbit produces extreme aerothermal and inertial forces that cause extensive breakup of vehicles that were not designed to survive substantially intact. However, extensive break-up is not always a guaranteed outcome. Therefore, an operator would be required to demonstrate that each piece of resulting debris from a UAR has a small enough effective casualty area to make multiple casualties an unlikely outcome. This demonstration would use the information already required by the debris analysis in accordance with § 450.121 and consequence analysis in § 450.135(b), so no additional analysis or application requirements would be needed.

V. Regulatory Notices and Analyses

A. Regulatory Impact Analysis

E.O. 12866 ("Regulatory Planning and Review") and E.O. 13563 ("Improving Regulation and Regulatory Review") require agencies to regulate in the "most cost-effective manner," to make a "reasoned determination that the benefits of the intended regulation justify its costs," and to develop regulations that "impose the least burden on society." The Office of Management and Budget has determined this proposed rule is not

a significant regulatory action as defined in Section 3(f) of E.O. 12866. FAA is seeking comments on the following analysis.

Currently, most applicants meet the requirement in § 450.101(c) to protect against high consequence events by ensuring that the consequence of any reasonably foreseeable failure mode, in any significant period of flight, is no greater than 1×10^{-3} CE_C. The proposed rule would allow an applicant to forgo this demonstration for a UAR if the applicant shows that there is sufficient breakup of the launch or reentry vehicle, including all vehicle components and undeployed payloads.

The applicant would make the showing using the information already required by the debris analysis in accordance with § 450.121 and consequence analysis in § 450.135(b). Consequently, no additional analysis or application requirements would be needed.

FAA estimates that forgoing the CE_C demonstration for a UAR would save each applicant around 60 hours of labor. An aerospace engineer would complete this work. The base 2024 wage rate of a private industry worker working full-time as an aerospace engineer is $67.88 per hour.[2] When including benefits, the total compensation for an aerospace engineer[3] is $96.28 per hour. Therefore, the total cost savings for industry would be $5,777 per application.

For FAA, an aerospace engineer would take about 30 hours to provide guidance and review the data. The aerospace engineer is on the FAA Core Compensation Plan at a

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[2] "Employer Costs for Employee Compensation – May 2024," Bureau of Labor Statistics, Employee costs for private industry workers in Series: 17-2011 Aerospace Engineers, available at: data.bls.gov/oes/#/industry/000000.

[3] The total compensation includes Bureau of Labor Statistics (BLS) compensation data. For 2024, BLS estimates that wages make up 70.5 percent of total compensation while benefits make up 29.5 percent. Employer Costs for Employee Compensation – December 2024, available at: www.bls.gov/news.release/archives/ecec_03142025.htm. To calculate total compensation, FAA multiplies the base wage by a factor of 1.42 (rounded from 100/70.5). Therefore, the total compensation for an aerospace engineers is 96.28 per hour ($67.88 per hour x 1.42).

J band[4] with a base hourly rate of $95.33. FAA uses a factor of 1.3625 for benefits[5] which results in a total loaded hourly wage of $129.88. This results in total cost savings of $3,897 per application for FAA. Therefore, the total cost savings between FAA and an applicant would be $9,674 per application. Any cost savings would only impact new applicants, and FAA expects about 40 new applications in the next 5 years. However, not all applicants would apply to conduct operations where UARs are possible. Therefore, the total number of applications impacted would be less than 40.

B. Regulatory Flexibility Act

Under the Regulatory Flexibility Act (RFA) (5 U.S.C. 601–612), agencies must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rulemaking on small entities (i.e., small businesses, small organizations, and small government jurisdictions). No regulatory flexibility analysis is required, however, if the head of an agency certifies that the proposed rule would not have a significant economic impact on a substantial number of small entities. FAA has concluded and hereby certifies that this proposed rule would not have a significant economic impact on a substantial number of small entities; therefore, an analysis is not included.

C. International Trade Impact Assessment

The Trade Agreements Act of 1979 (Pub. L. 96-39), as amended by the Uruguay Round Agreements Act (Pub. L. 103-465), prohibits Federal agencies from establishing standards or engaging in related activities that create unnecessary obstacles to the foreign commerce of the United States. Pursuant to these Acts, the establishment of standards is

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[4] FAA Engineering Pay Band J with Washington DC locality; effective Jan. 2026, maximum salary $198,281, available at: www.faa.gov/jobs/working_here/benefits/pay/core_salary_with_conversion.xlsx.

[5] Update to Civilian Position Full Fringe Benefit Cost Factor, Federal Pay Raise Assumptions, and Inflation Factors used in OMB Circular No. A-76, "Performance of Commercial Activities", Office of Management and Budget, March 11, 2008, available at: www.whitehouse.gov/wp-content/uploads/legacy_drupal_files/omb/memoranda/2008/m08-13.pdf.

not considered an unnecessary obstacle to the foreign commerce of the United States, so long as the standard has a legitimate domestic objective, such as the protection of safety, and does not operate in a manner that excludes imports that meet this objective. The statute also requires consideration of international standards and, where appropriate, they be the basis for U.S. standards.

FAA has assessed the potential effect of this proposed rule and determined that it would not create unnecessary obstacles to the foreign commerce of the United States.

D. Unfunded Mandates Assessment

The Unfunded Mandates Reform Act of 1995 (2 U.S.C. 1531-1538) governs the issuance of Federal regulations that require unfunded mandates. An unfunded mandate is a regulation that requires a State, local, or Tribal government or the private sector to incur direct costs without the Federal Government having first provided the funds to pay those costs. FAA determined the proposed rule would not result in the expenditure of $193,000,000 or more ($100,000,000 adjusted for inflation using the most current Implicit Price Deflator for the Gross Domestic Product) by State, local, or Tribal governments, in the aggregate, or the private sector, in any one year.

E. Paperwork Reduction Act

The Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)) requires FAA consider the impact of paperwork and other information collection burdens imposed on the public. FAA has determined there would be no new requirement for information collection associated with this proposed rule.

F. International Compatibility

In keeping with U.S. obligations under the Convention on International Civil Aviation, it is FAA policy to conform to International Civil Aviation Organization (ICAO) Standards and Recommended Practices to the maximum extent practicable. FAA

has determined there are no ICAO Standards and Recommended Practices that correspond to these proposed regulations.

G. Environmental Analysis

The Department has analyzed the environmental impacts of this notice of proposed rulemaking pursuant to the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321, et seq.). FAA has determined this proposed rule is categorically excluded pursuant to FAA Order 1050.1G. Categorical exclusions are categories of actions FAA has determined normally do not significantly affect the quality of the human environment and therefore do not require either an environmental assessment (EA) or environmental impact statement (EIS). In analyzing the applicability of a categorical exclusion, FAA must also consider whether extraordinary circumstances are present that would warrant the preparation of an EA or EIS. This rulemaking, which would allow a launch and reentry vehicle operator to protect against high consequence events during an uncontrolled atmospheric return by showing that there would be sufficient breakup of the vehicle to ensure protection against a single event expected to produce multiple casualties, is categorically excluded pursuant to FAA Order 1050.1G, Appendix B, Paragraph B-2.6(f), which categorically excludes issuance of regulatory documents. FAA does not anticipate any environmental impacts, and there are no extraordinary circumstances present in connection with this rulemaking.

VI. E.O. Determinations

A. E.O. 13132, Federalism

FAA has analyzed this proposed rule under the principles and criteria of E.O. 13132, Federalism. FAA has determined this action would not have a substantial direct effect on the States, or the relationship between the Federal Government and the States, or on the distribution of power and responsibilities among the various levels of government, and, therefore, would not have federalism implications.

B. E.O. 13175, Consultation and Coordination With Indian Tribal Governments

Consistent with E.O. 13175, Consultation and Coordination with Indian Tribal Governments,[6] and FAA Order 1210.20, American Indian and Alaska Native Tribal Consultation Policy and Procedures,[7] FAA ensures Federally Recognized Tribes (Tribes) are given the opportunity to provide meaningful and timely input regarding proposed Federal actions that have the potential to affect uniquely or significantly their respective Tribes. At this point, FAA has not identified any unique or significant effects, environmental or otherwise, on Tribes resulting from this proposed rule.

C. E.O. 13211, Regulations That Significantly Affect Energy Supply, Distribution, or Use

FAA analyzed this proposed rule under E.O. 13211, Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use (May 18, 2001). FAA has determined it would not be a "significant energy action" under the E.O. and would not be likely to have a significant adverse effect on the supply, distribution, or use of energy.

D. E.O. 13609, Promoting International Regulatory Cooperation

E.O. 13609, Promoting International Regulatory Cooperation, promotes international regulatory cooperation to (1) meet shared challenges involving health, safety, labor, security, environmental, and other issues and to reduce, eliminate, or (2) prevent unnecessary differences in regulatory requirements. FAA has analyzed this action under the policies and agency responsibilities of E.O. 13609 and has determined this action would have no effect on international regulatory cooperation.

E. E.O. 14192, Unleashing Prosperity Through Deregulation

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[6] 65 FR 67249 (November 6, 2000).

[7] FAA Order No. 1210.20 (January 28, 2004), available at: www.faa.gov/documentLibrary/media/1210.pdf.

This proposed rule, if finalized as proposed, is expected to be an E.O. 14192 deregulatory action because it has total costs less than zero as it streamlines the licensing process and reduces regulatory burden for license applicants.

VII. Additional Information

A. Comments Invited

FAA invites interested persons to participate in this rulemaking by submitting written comments, data, or views. FAA also invites comments relating to the economic, environmental, or federalism impacts that might result from adopting the proposals in this document. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. To ensure the docket does not contain duplicate comments, commenters should submit only one time if comments are filed electronically, or commenters should send only one copy of written comments if comments are filed in writing.

FAA will file in the docket all comments it receives, as well as a report summarizing each substantive public contact with FAA personnel concerning this proposed rule. Before acting on this proposal, FAA will consider all comments it receives on or before the closing date for comments. FAA will consider comments filed after the comment period has closed if it is possible to do so without incurring expense or delay. FAA may change this proposal in light of the comments it receives.

B. Confidential Business Information

Confidential Business Information (CBI) is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this NPRM contain commercial or financial information that is customarily treated as private, that you actually treat as private, and is relevant or responsive to this NPRM, it is important you clearly designate the submitted comments

as CBI. Please mark each page of your submission containing CBI as "PROPIN." FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this NPRM. Submissions containing CBI should be sent to the person in the **FOR FURTHER INFORMATION CONTACT** section of this document. Any commentary FAA receives that is not specifically designated as CBI will be placed in the public docket for this rulemaking.

C. Electronic Access and Filing

A copy of this NPRM, all comments received, any final rule, and all background material may be viewed online at www.regulations.gov using the docket number listed above. Electronic retrieval help and guidelines are available on the website. It is available 24 hours each day, 365 days each year. An electronic copy of this document may also be downloaded from the Office of the Federal Register's website at www.federalregister.gov and the Government Publishing Office's website at www.govinfo.gov. A copy may also be found at FAA's Regulations and Policies website at www.faa.gov/regulations_policies.

Copies may also be obtained by sending a request to the Federal Aviation Administration, Office of Rulemaking, ARM-1, 800 Independence Avenue SW, Washington, DC 20591, or by calling (202) 267-9677. Requesters must identify the docket or notice number of this rulemaking.

All documents FAA considered in developing this proposed rule, including economic analyses and technical reports, may be accessed in the electronic docket for this rulemaking.

D. Small Business Regulatory Enforcement Fairness Act

The Small Business Regulatory Enforcement Fairness Act of 1996 (Pub. L. 104-121, 110 Stat. 857, Mar. 29, 1996) requires FAA to comply with small entity requests for information or advice about compliance with statutes and regulations within its

jurisdiction. A small entity with questions regarding this document may contact its local FAA official or the person listed under the **FOR FURTHER INFORMATION CONTACT** heading at the beginning of the preamble. To find out more about SBREFA on the Internet, visit www.faa.gov/regulations_policies/rulemaking/sbre_act/.

List of Subjects

14 CFR Part 401

Organization and functions (Government agencies), Space transportation and exploration.

14 CFR Part 450

Aircraft, Aviation safety, Environmental protection, Investigations, Reporting and recordkeeping requirements, Space transportation and exploration.

The Proposed Amendments

For the reasons discussed in the preamble, the Federal Aviation Administration proposes to amend chapter III of title 14, Code of Federal Regulations, as follows:

PART 401— ORGANIZATION AND DEFINITIONS

1. The authority citation for part 401 is revised to read as follows:

Authority: 51 U.S.C. Chapter 509.

2. Amend § 401.7 by adding the definition for "Uncontrolled atmospheric return" in alphabetical order to read as follows:

§ 401.7 Definitions.

* * * * *

Uncontrolled atmospheric return means the passive descent of a launch or reentry vehicle from orbit that occurs as a result of natural orbital decay and where there is no ability to control the vehicle's trajectory.

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PART 450— LAUNCH AND REENTRY LICENSE REQUIREMENTS

3. The authority citation for part 450 is revised to read as follows:

Authority: 51 U.S.C. Chapter 509.

4. Amend § 450.101 by revising paragraph (c) to read as follows:

§ 450.101 Safety criteria.

* * * * *

(c) *High consequence event protection.* An operator must protect against a high consequence event in uncontrolled areas for each phase of flight by:

(1) Using flight abort as a hazard control strategy in accordance with the requirements of § 450.108;

(2) Ensuring the consequence of any reasonably foreseeable failure mode, in any significant period of flight:

(i) Is no greater than 1×10^{-3} conditional expected casualties; or

(ii) Results in sufficient breakup of the launch or reentry vehicle, including all vehicle components and undeployed payloads, during an uncontrolled atmospheric return; or

(3) Establishing the launch or reentry vehicle has sufficient demonstrated reliability as agreed to by the Administrator based on conditional expected casualties criteria during that phase of flight.

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Issued under authority provided by 49 U.S.C. 106(f) and 51 U.S.C. chapter 509 in Washington, DC.

Anh Minh Ngoc Nguyen,
Deputy Associate Administrator, Office of Commercial Space Transportation.
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