



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 450

[Docket No.: FAA-2026-9936; Notice No. 26-23]

RIN 2120-AM40

Streamlining Flight Safety Analysis Methodology Means of Compliance

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. Specifically, FAA proposes to alleviate regulatory burden for license applicants by consolidating information required for an operator's flight safety analysis.

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-2026-9936 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 revise requirements for a license applicant’s flight safety analysis (FSA) by identifying certain application requirements that can be applied to the FSA method as a whole, rather than to each individual analysis that comprises the overarching FSA method. Currently, a license applicant must address six items listed in

§ 450.115(c) each time the FSA regulations at § 450.117 through § 450.139 and the flight abort regulations at § 450.108 require a description of the methods used to undertake an analysis. Under the proposed change, three of the items in § 450.115(c) would be addressed through a single submission, rather than one submission for each description of methods. The remaining three requirements would continue to apply to each of the description of methods but would be condensed into two paragraphs.

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 E.O.

Section 450.101 provides that a vehicle operator may only initiate launch or reentry of a vehicle if the risks to the public meet the safety criteria of that section. To demonstrate that these criteria are satisfied, an operator must perform and document an FSA for all phases of flight, with limited exceptions (14 CFR 450.113). An FSA is a quantitative evaluation of the risks to members of the public and critical assets during flight of a launch or reentry vehicle, accounting for all reasonably foreseeable events and failures of safety-critical systems during nominal and non-nominal launch or reentry operations.

The requirements for FSAs are located in the eleven sections beginning at § 450.113 and ending at § 450.139. Sections 450.113 and 450.115 set out requirements that apply to the FSA generally. Sections 450.117 through 450.139, meanwhile, require an operator to conduct analyses that comprise the FSA.¹ In this proposed rule, these analyses required by §§ 450.117 through 450.139 are referred to as “FSA sub-analyses” or simply “sub-analyses” to distinguish them from the overarching FSA. Accordingly, §§ 450.117 through 450.139 are referred to in this proposed rule as “FSA sub-analysis sections” because they contain requirements for the FSA sub-analyses.²

The requirements in § 450.115(a) and (b) are for the flight safety analysis method (FSA method), which is the overarching method of conducting the FSA. The FSA method is comprised of (1) the methods used to develop the FSA sub-analyses required by §§ 450.117 through 450.139 (referred to in this proposed rule as “FSA sub-analysis

¹ The first five sections (§§ 450.117, 450.119, 450.121, 450.123, and 450.131) require analyses necessary to develop quantitative input data. The last four sections (§§ 450.133, 450.135, 450.137, and 450.139) require an applicant to use the input data to produce risk analyses, thereby developing the products necessary to evaluate compliance with the safety criteria in § 450.101.

² An FSA sub-analysis section may require more than one sub-analysis. For instance, § 450.139 requires an operator to conduct both a toxic release hazard analysis and a toxic risk assessment.

methods” or simply “sub-analysis methods”); and (2) methods of developing flight safety limits under § 450.108 (referred to in this proposed rule as “flight safety limits methods”), if applicable.³ Paragraph (a) of § 450.115 identifies the scenarios an operator must account for using the FSA method. Paragraph (b) of § 450.115 discusses the level of fidelity required for the FSA method, with the fundamental principle that the level of fidelity of the FSA need only be sufficient to demonstrate compliance with the safety criteria of § 450.101, accounting for uncertainty.

Each of the FSA sub-analysis sections requires that an operator submit a description of the sub-analysis method or methods used to develop the required sub-analysis or sub-analyses. Similarly, § 450.108(g)(1) requires an operator to submit a description of the flight safety limits methods. Each of these descriptions must, in turn, address six items required by § 450.115(c): the scientific principles and statistical methods used ((c)(1)); all assumptions and their justifications ((c)(2)); the rationale for the level of fidelity ((c)(3)); evidence for validation and verification ((c)(4)); the extent to which the benchmark conditions are comparable to the foreseeable conditions of the intended operations ((c)(5)); and the extent to which risk mitigations were accounted for in the analyses ((c)(6)).

The goal of requiring this thorough description of FSA sub-analysis methods and flight safety limits methods is twofold. First, a robust description is necessary to demonstrate compliance with the fidelity requirement of § 450.115(b). The level of fidelity of the FSA method cannot be assessed without an understanding of the methods that comprise it. Second, the description is necessary to assess compliance of FSA sub-analysis methods and flight safety limits methods (and thereby the foundation of FSAs

³ Notably, the development of flight safety limits under § 450.108 is not technically an FSA requirement. Rather, § 450.108 sets out requirements for applicants utilizing flight abort as a hazard control strategy. Nonetheless, an operator utilizing flight abort cannot produce an FSA without accounting for flight safety limits, and the level of fidelity of the FSA method cannot be assessed without including the methods used to develop flight safety limits.

they formulate) with § 450.101(g), which requires that “[f]or any analysis used to demonstrate compliance with [14 CFR 450.101], an operator must use accurate data and scientific principles and the analysis must be statistically valid.”

In the first seven FSA sub-analysis sections (§§ 450.117 through 450.135), the regulations contain an explicit reference to § 450.115(c), requiring that the descriptions of methods be “in accordance with § 450.115(c).”⁴ The last two FSA sub-analysis sections (§§ 450.137 and 450.139) do not explicitly reference § 450.115(c). Nonetheless, consistent with the intent expressed in the final rule preamble,⁵ FAA has required that applicants address the requirements in § 450.115(c)(1) through (6) in the description of the methods used to satisfy the requirements in all the FSA sub-analysis sections, including those in §§ 450.137 and 450.139.⁶

Although requiring all six items under § 450.115(c) for each description of methods in the FSA sub-analysis sections and § 450.108 has served the purpose of enabling FAA to find compliance with §§ 450.115(b) and 450.101(g), FAA is now proposing a more efficient approach that could serve this purpose and save significant time for both applicants and FAA reviewers.

IV. Discussion of the Proposal

FAA proposes to amend § 450.115 such that an applicant would no longer need to submit the following items for each FSA sub-analysis method and flight safety limits

⁴ See §§ 450.117(d)(1), 450.119(c)(1) and (2), 450.121(d)(2) and (3), 450.123(c)(1), 450.131(f)(1), and 450.135(c)(1).

⁵ “There are 11 performance-based sections with FSA requirements that fall into three groups. The first group, §§ 450.113 and 450.115, provides requirements on the scope and fidelity of the analyses required by the remaining nine sections. The second group, which consists of five sections from § 450.117 through § 450.131, specifies the requirements for analyses necessary to develop quantitative input data used by the last four sections. The last group consists of four sections that specify quantitative risk analyses with products necessary to evaluate compliance with the safety criteria in § 450.101. All of the FSA sections must use methods that comply with § 450.101(g) because they are essential to demonstrating compliance with the safety criteria in § 450.101.” Streamlined Launch and Reentry Licensing Requirements, Final Rule (85 FR 79566, 79630).

⁶ Though the introductory text to § 450.115(c) could also be read to require a description of the overarching FSA method, FAA has never required an applicant to submit this description because the descriptions of the sub-analysis methods are sufficient for evaluating the FSA method as a whole.

method: rationale for the level of fidelity, the extent to which the benchmark conditions are comparable to the foreseeable conditions of the intended operations, and the extent to which risk mitigations were accounted for in the analysis. Rather, those items would only be submitted once for the FSA method as a whole. To accomplish this, the revised text would divide the application information between a revised paragraph (c), describing what is required for each FSA sub-analysis method and flight safety limits method to demonstrate compliance with § 450.101(g), and a new paragraph (d) describing what is required to be submitted for the FSA method as a whole to demonstrate compliance with § 450.115(b).

Revised Section 450.115(c)

In revised paragraph (c), FAA would continue to require that descriptions of FSA sub-analysis methods in §§ 450.117 through 450.139 and flight safety limits methods under § 450.108 include (1) the scientific principles and statistical methods, (2) assumptions with justifications, and (3) evidence for verification and validation. Based on past licensing actions, FAA has found that receiving these items for each sub-analysis method and flight safety limits method is critical to determining whether the corresponding analysis complies with § 450.101(g).

The proposed paragraph would revise the introductory text of § 450.115(c) to read: “(c) *Descriptions of methods.* Descriptions of analysis methods required under § 450.108 and §§ 450.117 through 450.139 must demonstrate compliance with § 450.101(g) by documenting. . . .” The revision amends the current text in three important ways. First, the paragraph would state that descriptions of FSA sub-analysis methods and flight safety limits methods must “demonstrate compliance with § 450.101(g)” by documenting the listed items. Although FAA has always used the items required by current § 450.115(c)(1), (2), and (4) to demonstrate compliance with § 450.101(g), the current regulatory text only references § 450.101(g) in reference to

validation and verification. The proposed revision would clarify that the requirements to provide scientific principles and statistical methods, assumptions with justifications, and evidence for verification and validation are all necessary to demonstrate compliance with § 450.101(g). FAA anticipates that this change would provide greater clarity for applicants and evaluators on what is sufficient documentation to demonstrate the validity of the analyses.

Second, the proposed introductory text to § 450.115(c) would no longer frame the paragraph as an application requirement. However, the change would not mean applicants no longer need to submit the items in § 450.115(c) as part of their applications. The proposal would retain application requirements in FSA sub-analysis and flight safety limits sections requiring descriptions of methods. The proposed update to § 450.115(c) only modifies what each description must contain. In other words, to meet an application requirement for a description of methods in an FSA sub-analysis section or § 450.108, that description of methods would continue to include the items required by § 450.115(c).

Finally, proposed § 450.115(c) would add a cross-reference to the FSA sub-analysis sections (§§ 450.117 through 450.139) and § 450.108 to clarify the paragraph's applicability. Although FAA has always interpreted § 450.115(c) to apply to § 450.108 and §§ 450.117 through 450.139, consistent with the intent stated in the final rule preamble, the lack of a single, clear statement about the paragraph's applicability in the regulations has led to some confusion among FAA staff and applicants. This is particularly true for § 450.108, which is not an FSA section, and §§ 450.137 and 450.139, which currently do not contain cross-references for the descriptions of methods to be "in accordance with § 450.115(c)." The clarifying change would align with the intent stated in the final rule preamble: § 450.115(c) applies to required descriptions of methods in all FSA sub-analysis sections, from § 450.117 to § 450.139, as well as § 450.108.

FAA also proposes to combine current paragraphs (c)(1) and (c)(2) into one paragraph. Proposed paragraph (c)(1) would require descriptions of FSA sub-analysis methods and flight safety limits methods to document “[t]he scientific principles and statistical methods used, with associated assumptions and their justifications.” Since part 450 became effective, FAA has determined that separating “the scientific principles and statistical methods used” (current paragraph (c)(1)) and “all assumptions and their justifications” (current paragraph (c)(2)) results in applicants needing to discuss these closely intertwined requirements repetitively. By combining the requirements into one paragraph, applicants would be able to address these related requirements only once. FAA anticipates that this change would streamline the application process for applicants and application review for FAA.

Finally, FAA also proposes to remove a reference to § 450.101(g) currently located in paragraph (c)(4). As discussed earlier in this section, the proposed introductory language to paragraph (c) includes a new reference to § 450.101(g) to clarify that scientific principles and statistical methods, assumptions with justifications, and evidence for verification and validation are all necessary to demonstrate compliance with § 450.101(g). Currently paragraph (c)(4) also contains a reference to § 450.101(g): “(4) The evidence for validation and verification required by § 450.101(g)” To avoid duplicative language, FAA proposes to remove the reference to § 450.101(g) in proposed paragraph (c)(2), which is adapted from current paragraph (c)(4). The new paragraph would read: “(2) The evidence for validation and verification.” However, the intent of proposed paragraph (c)(2) would remain unchanged from the current regulation: an applicant must provide evidence that verification and validation activities have occurred for the specific method. Specifically, in accordance with the second sentence of § 450.101(g), the applicant must show that the method has been validated against a valid benchmark, such as a previous mishap, test, or high fidelity method.

New Section 450.115(d)

In proposed paragraph (d), FAA would set an application requirement for the FSA method as a whole. Specifically, an applicant would need to submit: (1) the rationale for the level of fidelity, (2) the extent to which benchmark conditions are comparable to the foreseeable conditions of the intended operations, and (3) the extent to which risk mitigations were accounted for in the FSA. Those items correspond to current paragraphs (c)(3), (5), and (6).

As discussed previously, the twin goals of current § 450.115(c) are to demonstrate compliance with § 450.101(g) and demonstrate compliance with § 450.115(b). However, the current regulatory requirement overshoots the mark. Requiring each description of an FSA sub-analysis method and the description of methods in § 450.108 to identify items in § 450.101(c)(3), (5), and (6) is not necessary to demonstrate compliance with § 450.101(g) and is an inefficient method of demonstrating compliance with § 450.115(b). FAA only needs to review these items once, for the FSA method as a whole, to determine that the FSA method has a level of fidelity sufficient to meet § 450.115(b). As such, proposed paragraph (d) would only require submittal of these items once and only as they pertain to the FSA method as a whole. The remainder of this section discusses each of these items in more detail.

First, the current requirement at paragraph (c)(3), to provide a “rationale for the level of fidelity” for each FSA sub-analysis method and each flight safety limit method is inefficient, given that FAA’s determination on the acceptable level of fidelity for these methods depends in part on an evaluation of how well those fit together to support the overall level of fidelity of the FSA method. Therefore, a description of the rationale for the level of fidelity of the FSA method as a whole offers a more efficient and effective approach to explaining how the level of fidelity selected for each of the FSA sub-analysis

methods and each of the flight safety limits methods supports the overall level of fidelity of the FSA method as a whole required by § 450.115(b).

Likewise, FAA has found that, with respect to the current requirement at paragraph (c)(5), it is often inefficient to evaluate the extent to which each benchmark used to validate an individual sub-analysis method or flight safety limits method compares to the foreseeable conditions of the intended operations. The purpose of the comparison is to identify sources of uncertainty so that they are accounted for in accordance with § 450.115(b), including uncertainty arising when a model is applied outside the regime in which it has been validated. However, in many instances, a detailed comparison of the specific validation benchmarks to the foreseeable conditions of the intended operation provides limited value where the findings would not meaningfully affect the level of fidelity of the FSA method. For instance, while a comparison of benchmarks used to validate an individual method with foreseeable conditions of the operation may show that the method is subject to uncertainty, there nonetheless may be high confidence that the results of the method are conservative and therefore not influential to the fidelity of the FSA method.

The proposed change would eliminate this exercise in favor of a more balanced approach. Instead of requiring an applicant to compare every benchmark to the foreseeable conditions of the intended operations, the proposed rule would require an operator to make the comparison only for benchmarks for which significant uncertainty would impact the fidelity of the FSA method. This approach achieves the goal of reducing workload for applicants while still enabling FAA to evaluate whether the FSA method produces valid results.

Lastly, requiring a description of risk mitigations for each FSA sub-analysis method and flight safety limits method, as currently required by paragraph (c)(6), is duplicative, given that risk mitigations (such as flight abort) are often only applicable to

the FSA method as a whole. Therefore, proposed paragraph (d) would require submission of the extent to which risk mitigations were accounted for in the FSA.⁷

Similarly to the way in which the revised introductory text to paragraph (c) would reference § 450.101(g), FAA also proposes to include a reference to § 450.115(b) in the introductory text of new paragraph (d). The items required in proposed paragraph (d) are specifically aimed at demonstrating compliance with § 450.115(b), and the proposed revision would make that connection explicit. FAA anticipates that this change would provide clarity for applicants and evaluators on what constitutes sufficient documentation to meet new paragraph (d).

Terminology Updates

In addition, FAA proposes to amend several FSA sub-analysis descriptions of methods requirements⁸ to replace the term “methodology” with “methods.” Currently, the terminology used in these sections refers to sub-analysis methods as both “methods” and “methodology.” For instance, § 450.117(d)(1) requires an applicant to submit “a description of the methods,” but § 450.119(c)(1) and (2) require an applicant to submit “a description of the methodology.” The terms are currently treated as synonymous (a methodology is a system of methods used in a particular area of study or activity). However, the proposed rule would amend FSA sub-analysis sections using the term “methodology” to instead refer to “methods” in order to match the terminology used in proposed § 450.115(c).

Revisions to Sections 450.137 and 450.139

The proposed rule would revise descriptions of methods requirements in §§ 450.137 and 450.139 to include the phrase “in accordance with § 450.115(c).” As

⁷ Whereas the original requirement in paragraph (c)(6) referred to “the extent to which risk mitigations were accounted for in the analyses,” the proposed paragraph (d)(3) now refers to “the flight safety analysis” because the proposed update is intended to apply to the FSA method as a whole.

⁸ See proposed §§ 450.119(c)(1) and (2), 450.133(e)(1), and 450.139(f)(7)(i).

discussed previously, FAA has consistently interpreted § 450.115(c) as applying to all descriptions of methods requirements in FSA sub-analysis sections, regardless of whether the requirements specifically reference § 450.115(c). However, the lack of a clear cross-reference to § 450.115(c) in those sections has caused confusion for both FAA staff and applicants. Therefore, the proposed text would add the reference to § 450.115(c) in § 450.137(c)(2) through (c)(5) and § 450.139(f)(7) and (f)(8). In conjunction with the changes to the introductory language of § 450.115(c), FAA anticipates that this change would significantly clarify the regulatory requirements.

In addition, the proposed rule would revise § 450.139(f)(7)(ii) and (f)(8) to more clearly state that those paragraphs require a description of methods. Section 450.139(f)(7) requires an operator to submit a toxic release hazard analysis. As part of the toxic release hazard analysis, § 450.139(f)(7)(ii) requires “the methodology and representative results of an applicant’s determination of the worst-case or maximum-credible quantity of any toxic release that might occur during the flight of a vehicle” Although FAA has always interpreted this “methodology” requirement as implicitly requiring a description of the methodology of conducting a toxic release hazard analysis, the proposed paragraph would make the requirement explicit by requiring: “[a] description of the methods used in the toxic release hazard analysis.” The proposal would move the remainder of the existing requirement verbatim into a new paragraph, § 450.139(f)(7)(iii): “representative results of an applicant’s determination of the worst-case or maximum-credible quantity of any toxic release that might occur during the flight of a vehicle.”

Section 450.139(f)(8) requires a toxic risk assessment. As part of the toxic risk assessment, § 450.139(f)(8)(ii)(A) requires “[a] demonstration that the safety criteria in § 450.101 will be met” Although FAA has interpreted this required “demonstration” to constitute a description of methods used to conduct the toxic risk assessment, the proposed change would make the requirement explicit by replacing the current text at

paragraph (f)(8)(ii)(A) with “[a] description of the methods for conducting the toxic risk assessment, in accordance with § 450.115(c)” and redesignating the existing paragraphs (A) through (D) as paragraphs (B) through (E).

Revision to Section 450.108

FAA has also interpreted § 450.108(g)(1) as requiring an applicant to submit a description of methods for the development of flight safety limits in accordance with § 450.115(c). However, paragraph (g)(1) currently states that the description must be submitted in accordance with § 450.115 rather than § 450.115(c). The proposed rule would amend this paragraph to update the reference to “§ 450.115(c).”

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.

Currently, applicants must address six items in § 450.115(c) when describing FSA sub-analysis methods and flight safety limits methods that make up the FSA method. Under the proposed rule, half of these six application requirements would instead be required for the overall FSA method, rather than once for each individual method. The regulatory text amendments are set out in Table 1.

Table 1: Regulatory Text Revisions

Provision	Current Regulatory Text	Revised Regulatory Text	Impact
§ 450.108(g)(1)	Cross references “450.115”	Corrects the cross-reference to “450.115” to “450.115(c)”	No Impact – correction
§ 450.115(c)	“Application requirements. An applicant must submit a	“Description of methods. Descriptions of analysis methods required under	Depending on type of application as a modification or

	description of the flight safety analysis methodology, including identification of:"	§ 450.108 and §§ 450.117 through 450.139 must demonstrate compliance with § 450.101(g) by documenting:"	new, FAA expects cost savings for both industry and FAA from this due to reduced labor burden
§ 450.115(c)(1)	"The scientific principles and statistical methods used"	Combined into new § 450.115(c)(1): "The scientific principles and statistical methods used, with associated assumptions and their justifications; and"	Depending on type of application as a modification or new, FAA expects cost savings for both industry and FAA from this due to reduced labor burden
§ 450.115(c)(2)	"All assumptions and their justifications"	Combined into new § 450.115(c)(1): "The scientific principles and statistical methods used, with associated assumptions and their justifications; and"	Depending on type of application as a modification or new, FAA expects cost savings for both industry and FAA from this due to reduced labor burden
§ 450.115(c)(3)	"The rationale for the level of fidelity;"	Changed into new § 450.115(d)(1).	Depending on type of application as a modification or new, FAA expects cost savings for both industry and FAA from this due to reduced labor burden
§ 450.115(c)(4)	"The evidence for validation and verification required by § 450.101(g);"	Changed into new § 450.115(c)(2). "Evidence for validation and verification."	Depending on type of application as a modification or new, FAA expects cost savings for both industry and FAA from this due to reduced labor burden
§ 450.115(c)(5)	"The extent to which the benchmark conditions are comparable to the foreseeable conditions of the intended operations"	Changed into new § 450.115(d)(2): "The extent to which the benchmark conditions are comparable to the foreseeable conditions of the intended operations; and"	Depending on type of application as a modification or new, FAA expects cost savings for both industry and FAA from this due to reduced labor burden
§ 450.115(c)(6)	"The extent to which risk mitigations were accounted for in the analyses."	Changed into new § 450.115(d)(3): "The extent to which risk mitigations were accounted for in the flight safety analysis."	Depending on type of application as a modification or new, FAA expects cost savings for both industry and FAA from this due to reduced labor burden

§ 450.119(c)(1)	“A description of the methodology used to characterize the vehicle’s flight behavior throughout malfunction flight, in accordance with § 450.115(c).”	“A description of the methods used to characterize the vehicle’s flight behavior throughout malfunction flight, in accordance with § 450.115(c).”	No Impact – language added for consistency
§ 450.119(c)(2)	“A description of the methodology used to determine the limits of a useful mission, in accordance with § 450.115(c).”	“A description of the methods used to determine the limits of a useful mission, in accordance with § 450.115(c).”	No Impact – language added for consistency
§ 450.133(e)(1)	“A description of the methodology to be used in the flight hazard area analysis in accordance with § 450.115(c), including:”	“A description of the methods to be used in the flight hazard area analysis, in accordance with § 450.115(c), including:”	No Impact – language added for consistency
§ 450.137(c)(2)	“A description of the methods used to compute the foreseeable explosive yield probability pairs, and the complete set of yield-probability pairs, used as input to the far-field overpressure analysis;”	“A description of the methods used to compute the foreseeable explosive yield probability pairs, in accordance with § 450.115(c), and the complete set of yield-probability pairs, used as input to the far-field overpressure analysis;”	No Impact – language added for clarification
§ 450.137(c)(3)	“A description of the methods used to compute peak incident overpressures as a function of distance from the explosion and prevailing meteorological conditions, including sample calculations for a representative range of the foreseeable meteorological conditions, yields, and population center locations;”	“A description of the methods used to compute peak incident overpressures as a function of distance from the explosion and prevailing meteorological conditions, in accordance with § 450.115(c), including sample calculations for a representative range of the foreseeable meteorological conditions, yields, and population center locations;”	No Impact – language added for clarification
§ 450.137(c)(4)	“A description of the methods used to compute the probability of window breakage, including tabular data and graphs for the probability of breakage as a function of the peak incident overpressure for a representative range of window types, building types, and yields accounted for;”	“A description of the methods used to compute the probability of window breakage, in accordance with § 450.115(c), including tabular data and graphs for the probability of breakage as a function of the peak incident overpressure for a representative range of window types, building types, and yields accounted for;”	No Impact – language added for clarification

§ 450.137(c)(5)	“A description of the methods used to compute the probability of casualty for a representative individual, including tabular data and graphs for the probability of casualty, as a function of location relative to the window and the peak incident overpressure for a representative range of window types, building types, and yields accounted for;”	“A description of the methods used to compute the probability of casualty for a representative individual, in accordance with § 450.115(c), including tabular data and graphs for the probability of casualty, as a function of location relative to the window and the peak incident overpressure for a representative range of window types, building types, and yields accounted for;”	No Impact – language added for clarification
§ 450.139(f)(7)(ii)	“The methodology and representative results of an applicant’s determination of the worst-case or maximum-credible quantity of any toxic release that might occur during the flight of a vehicle;”	“A description of the methods used in the toxic release hazard analysis, in accordance with § 450.115(c); and”	No Impact – language added for clarification and consistency
§ 450.139(f)(7)(iii)	N/A	“Representative results of an applicant’s determination of the worst-case or maximum-credible quantity of any toxic release that might occur during the flight of a vehicle;”	Depending on type of application as a modification or new, FAA expects cost savings for both industry and FAA from this due to reduced labor burden
§ 450.139(f)(8)(ii)(A)	“A demonstration that the safety criteria in § 450.101 will be met;”	Changed into new § 450.139(f)(8)(ii)(B). “A demonstration that the safety criteria in § 450.101 will be met;”	Depending on type of application as a modification or new, FAA expects cost savings for both industry and FAA from this due to reduced labor burden
§ 450.139(f)(8)(ii)(B)	“The population characteristics in receptor locations that are identified by toxic dispersion modeling as toxic hazard areas;”	Changed into new § 450.139(f)(8)(ii)(C). “The population characteristics in receptor locations that are identified by toxic dispersion modeling as toxic hazard areas;”	Depending on type of application as a modification or new, FAA expects cost savings for both industry and FAA from this due to reduced labor burden
§ 450.139(f)(8)(ii)(C)	“A description of any risk mitigations applied in the toxic risk assessment; and”	Changed into new § 450.139(f)(8)(ii)(D). “A description of any risk mitigations applied in the	Depending on type of application as a modification or new, FAA expects cost savings for both industry and FAA from this due

		toxic risk assessment; and”	to reduced labor burden
§ 450.139(f)(8)(ii)(D)	“A description of the population exposure input data used in accordance with § 450.123.”	Changed into new § 450.139(f)(8)(ii)(E). “A description of the population exposure input data used in accordance with § 450.123.”	Depending on type of application as a modification or new, FAA expects cost savings for both industry and FAA from this due to reduced labor burden
§ 450.139(f)(8)(ii)(A)	N/A	“A description of the methods for conducting the toxic risk assessment, in accordance with § 450.115(c);”	No Impact – language added for clarification

In addition, for clarification, in § 450.137 and § 450.139, FAA proposes adding the text “in accordance with § 450.115(c),” but this change would have no economic impact. In § 450.108(g), FAA proposes fixing the cross-reference to “450.115” to instead read “450.115(c),” but this too would have no economic impact. FAA also proposes to clarify that § 450.139(f)(7) and (f)(8) require a description of methods, but this does not depart from current practice and therefore would have no economic impact. Lastly, for clarification, the term “methodology” would be changed to “methods” in §§ 450.119, 450.133, and 450.139 for consistent terms that match the terminology used in proposed § 450.115(c), which would have no economic impact from the baseline.

FAA anticipates that the proposed rule would result in a considerable reduction in the cost of compliance for applicants. FAA does not have enough data to analyze the impact quantitatively; however, a summary of the time burden of the licensing process is provided below. FAA is uncertain of the hours for each new application and for each modification. This uncertainty is driven by two factors. For new applications, the uncertainty arises because each license application is different due to the varying types of operations. Second, for modifications, the uncertainty arises because FAA is unable to predict in advance which aspect of the license would be modified. As a result, the time burden differs between new applications and license modifications, and FAA does not have the ability to analyze the impact quantitatively.

In addition, while FAA can identify the general labor categories involved in the FSA, accurately forecasting the proportional allocation of labor hours among these disciplines carries a high degree of statistical uncertainty. Furthermore, pursuant to 14 CFR 450.45(b), operators may elect to utilize the services of a Federal entity. Exercising this option significantly alters both the anticipated time burden and the requisite personnel composition for the FSA.

FAA expects between two to five new applications per year. Over the past five years, there have been 17 new applications. For modification requests, there have been 179 in the past five years, for an average of approximately 35 per year. Thus, FAA cannot estimate an average number of hours per license as it is license-dependent. However, based on current licenses, for example, for one licensee, there have been six modifications over one year that resulted in 10,747 hours spent by FAA. Another license required 13 modifications that resulted in 6,846 hours spent by FAA. These hours are based on internal FAA data.

Flight safety analysis takes up a significant amount of this time for industry and FAA. Therefore, FAA expects considerable cost savings for both industry and FAA from this proposed rulemaking due to reduced labor burden. Further, FAA requests public comment on these estimates and the expected savings from this proposed rule.

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. No. 96-39), as amended by the Uruguay Round Agreements Act (Pub. L. No. 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 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 alleviate regulatory burden for license applicants by consolidating information required for an operator's flight safety analysis, 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,⁹ and FAA Order 1210.20, American Indian and Alaska Native Tribal Consultation Policy and Procedures,¹⁰ 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)

⁹ 65 FR 67249 (November 6, 2000).

¹⁰ FAA Order No. 1210.20 (January 28, 2004), available at www.faa.gov/documentLibrary/media/1210.pdf.

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

This proposed rule, if finalized as proposed, is expected to be an E.O. 14192 deregulatory action.

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 in 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 450—LAUNCH AND REENTRY LICENSE REQUIREMENTS

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

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

2. Revise § 450.108(g)(1) to read as follows:

* * * * *

(g) * * *

(1) A description of the methods used to demonstrate compliance with paragraph (c) of this section, including descriptions of how each analysis constraint in paragraph (d) of this section is satisfied, in accordance with § 450.115(c).

* * * * *

3. Amend § 450.115 by revising paragraph (c) and adding paragraph (d) to read as follows:

§ 450.115 Flight safety analysis methods.

* * * * *

(c) *Descriptions of methods.* Descriptions of analysis methods required under § 450.108 and §§ 450.117 through 450.139 must demonstrate compliance with § 450.101(g) by documenting:

(1) The scientific principles and statistical methods used, with associated assumptions and their justifications; and

(2) Evidence for validation and verification.

(d) *Application requirements.* An applicant must demonstrate that the flight safety analysis method complies with paragraph (b) of this section by submitting:

(1) The rationale for the level of fidelity;

(2) The extent to which the benchmark conditions are comparable to the foreseeable conditions of the intended operations; and

(3) The extent to which risk mitigations were accounted for in the flight safety analysis.

4. Amend § 450.119 by revising paragraphs (c)(1) and (c)(2) to read as follows:

§ 450.119 Trajectory analysis for malfunction flight.

* * * * *

(c) * * *

(1) A description of the methods used to characterize the vehicle's flight behavior throughout malfunction flight, in accordance with § 450.115(c).

(2) A description of the methods used to determine the limits of a useful mission, in accordance with § 450.115(c).

* * * * *

5. Amend § 450.133 by revising paragraph (e)(1) to read as follows:

§ 450.133 Flight hazard area analysis.

* * * * *

(e) * * *

(1) A description of the methods to be used in the flight hazard area analysis, in accordance with § 450.115(c), including:

* * * * *

6. Amend § 450.137 by revising paragraphs (c)(2) through (c)(5) to read as follows:

§ 450.137 Far-field overpressure blast effects analysis.

* * * * *

(c) * * *

(2) A description of the methods used to compute the foreseeable explosive yield probability pairs, in accordance with § 450.115(c), and the complete set of yield-probability pairs, used as input to the far-field overpressure analysis;

(3) A description of the methods used to compute peak incident overpressures as a function of distance from the explosion and prevailing meteorological conditions, in accordance with § 450.115(c), including sample calculations for a representative range of the foreseeable meteorological conditions, yields, and population center locations;

(4) A description of the methods used to compute the probability of window breakage, in accordance with § 450.115(c), including tabular data and graphs for the probability of breakage as a function of the peak incident overpressure for a representative range of window types, building types, and yields accounted for;

(5) A description of the methods used to compute the probability of casualty for a representative individual, in accordance with § 450.115(c), including tabular data and graphs for the probability of casualty, as a function of location relative to the window and the peak incident overpressure for a representative range of window types, building types, and yields accounted for;

* * * * *

7. In § 450.139:

a. Revise paragraph (f)(7)(ii);

b. Add paragraph (f)(7)(iii);

c. Redesignate paragraphs (f)(8)(ii)(A) through (D) as paragraphs (f)(8)(ii)(B)

through (E); and

d. Add new paragraph (f)(8)(ii)(A).

The amendments read as follows:

§ 450.139 Toxic hazards for flight.

* * * * *

(f) * * *

(7) * * *

(ii) A description of the methods used in the toxic release hazard analysis, in accordance with § 450.115(c); and

(iii) Representative results of an applicant's determination of the worst-case or maximum-credible quantity of any toxic release that might occur during the flight of a vehicle;

(8) * * *

(ii) * * *

(A) A description of the methods for conducting the toxic risk assessment, in accordance with § 450.115(c);

* * * * *

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

Minh A. Nguyen,

Deputy Associate Administrator, Office of Commercial Space Transportation.

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