

EO 12866 MEETING, RIN 2120-AL17

**STREAMLINING LAUNCH AND REENTRY
LICENSING REQUIREMENTS**

JULY 27, 2020

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Attendees

- Blue Origin Attendees:
 - Andre Weil
 - Audrey Powers
 - Casey Thompson
 - John Jorgensen
 - Matt Donovan
 - Megan Mitchell
 - Sagi Kfir

Comments of Commercial Spaceflight Federation

- Blue Origin is a member of the Commercial Spaceflight Federation and contributed to the consensus comments submitted by CSF as well as to the content to be presented at CSF's E012866 meeting
- This presentation attempts to avoid repetition of those comments and to focus on implications of the NPRM unique to Blue Origin's vehicle programs and relationship with FAA

Executive Order 12866

- OIRA review under EO 12866
 - Requires an analysis of the costs and benefits of rules; and a reasoned determination that the benefits justify the costs.
 - Promotes interagency review of final rule to avoid inconsistent, incompatible, or duplicative policies.
- These are aligned with the direction of SPD-2 which focused on the creation of a performance-based and non-duplicative regulatory regime, that reduces regulatory burden and cost for existing operators, lowers barriers to entry for new providers, and maintains current levels of public safety.
- This presentation focuses on:
 - areas where the costs of the NPRM outweigh its benefits or
 - where a performance based rather than prescriptive option would result in equivalent safety and lower costs or burden
 - where NPRM content is duplicative or incompatible with the requirements of other agencies

Conditional Expected Casualty (CEc)

- Blue assessment of current vehicle program
 - Thousands of hours, years of FTE time to bring a safely operating vehicle into compliance with proposed rules
 - If existing expected casualty risk limits are insufficient to protect the public such that risk limits need to be changed, FAA should provide rationale sufficient to justify years of effort and costs to programs.
- Fundamental flaws of CEc proposal
 - Uncertainty as to how to conduct this analysis; translating into inefficient negotiations between operators and FAA
 - CEc ignores the probability of a failure occurring, instead assuming 100% probability of failure at every second in the trajectory, which is an unrealistic characterization of risk;
 - These could prevent some operators from operating

Critical Assets Protection

- NPRM states FAA did not estimate the costs associated with the proposed critical assets protection regulations (§§450.101(a)(4) and 450.101(b)(4)) “because it is current practice on Federal Ranges.”
- The NPRM both admits that it duplicates Federal Range requirements and includes a deficient cost analysis.
 - FAA ignored the new costs applicable to operators at private sites like Blue Origin where these requirements do not currently exist
- The NPRM does not explain how critical assets will be identified, how operators will obtain the data necessary to conduct the proposed protection analysis, and includes ambiguous requirements to protect against loss of functionality.
- Connection of critical assets to CEC and flight safety system requirements were also confusing and ambiguous
- The duplication and uncertainty associated with this proposal offer broad potential for costs in alignment of regulatory authorities, analysis time, additional testing and redesign, all potentially delaying operations. The NPRM ignored these potential costs.

Grandfathering of Existing Operators

- Blues currently operates its suborbital vehicle program under a Part 431 license
- Planning submission of Part 431 license application in Q1 of 2021.
- Would be grandfathered under the provisions of the proposed rules,
 - Some proposed rules are still applicable, even with grandfathering – Critical Assets
 - Blue must comply with Part 450 when it submits a license modification or renewal request.
- Even when Blue's existing license is grandfathered:
 - Immediate compliance with critical assets protection requirements
 - Modification or renewal would bring requirements of CEc, highly reliable FSS
- FAA estimates one month for an industry aerospace engineer to develop documentation and analysis to apply for a modification of an existing license; analysis is severely flawed

Advisory Circulars

- Performance based rules are successful when accompanied by robust guidance in the form of ACs that define acceptable means of complying with the rules
- Single biggest way FAA can avoid costs and regulatory burdens associated with these rules
- Without ACs, individual operators will undertake unique engagements with FAA to develop individual means of compliance which is inefficient, time consuming, and costly.
- Blue Origin identified many areas of the NPRM that are prescriptive in nature, should be replaced with performance based alternatives and the prescriptive content moved to ACs
 - Software proposal
- Blue Origin likewise suggested in many places what content might be appropriate for an AC
 - Proof of reliability of a FSS
- Blue strongly recommends that AST publish ACs sufficient to support the final rules in advance of them taking effect, with sufficient time and opportunity allocated for industry response and comment to the ACs.

Software Design

- The NPRM's treatment of software is overly prescriptive, leading to unnecessary regulatory burden and cost, and potentially reducing safety in industry.
- Software is one of many complex and critical onboard systems and should not be treated in unique fashion
- Instead of including software under the performance based proposal applicable other critical on board systems, the NPRM creates a highly prescriptive and costly approach to regulating software.
- The result is a rule that will stifle innovation, preclude use of current industry best practices, and prevent development of safer systems than those allowed by the NPRM

Flight Safety System Design

- Reliability requirements of flight safety system include reference to one AC with one accepted means of compliance based on USAF requirements
- Blue Origin provided comments:
 - The proposed AC would be costly and potentially impossible for some operators to meet
 - Compliance with the proposed AC was not accounted for in FAA's cost assessment of one month of one engineer's time to bring a program into compliance with the new rules.
 - Other industry standards that can be used to prove reliability requirements of new rules that should be documented in an AC, resulting in more flexibility, a more robust performance based approach, and more economic options for operators to comply

Duplicative Requirements

- Blue Origin has been answering to multiple authorities (USAF and FAA) each having their own unique set of regulations, for 3 years on the New Glenn program
 - Primary focus has been USAF requirements, and we will soon begin documenting deliverables required under FAA's part 431.
 - The current system is inefficient, costly, burdensome;
- Congress and the Administration have directed improvements in this area
- NPRM states that FAA does not address the issue of duplicative requirements because it is outside the scope of the rulemaking.
- The NPRM also duplicates (and possibly conflicts with) other agencies' requirements in many areas:
 - Ground safety (USAF, NASA, Site Operator), Radio Frequency Management (FCC, USAF), Critical Asset Protection (USAF, NASA), Neighboring Operations Personnel
- Blue continues to request that DOT, DOD, and NASA provide insight to industry as to how duplication will be ended

Other Definitions

- Proposed definition of “Public” continues to capture “Neighboring Operations Personnel” and other individuals with a interest in the licensed activity, perpetuating flaw in the current system
 - Adverse impacts on multiuser and multiuse sites, disrupting operations
 - NPRM ignores impact to private launch sites, leading to inefficiencies and disruptions in operations during licensed activities.
- The rule should evolve both definitions to reflect current realities by excluding from the definition of “Public” those who have an interest in and choose to participate in the spaceflight activity, including for example, neighboring operations personnel, customers, astronaut families, and other invited guests.
- FAA can still comply with statutory requirements through the MPL, insurance and other risk mitigation means



BLUE ORIGIN

For additional questions, contact

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