

Part 440 FINANCIAL RESPONSIBILITY
AEROSPACE RULEMAKING
COMMITTEE

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Contents

I. Executive Summary	4
II. Current Regulatory Landscape.....	4
A. Part 440 – Financial Responsibility	4
B. US Commercial Space Launch Competitiveness Act Incorporation Rulemaking	5
III. SpARC Charter - Tasks & Objectives	6
IV. SpARC Activities and Outputs	6
V. SpARC Recommendations - Intent, Rationale, and Approach.....	8
Maximum Probable Loss (MPL)	8
General MPL Observations	8
MPL1 – Greater Transparency Regarding MPL Methodology	8
MPL2 – Update MPL Risk Threshold	10
MPL3 – Costs of Casualty	13
Hazardous Area Visitors (HAV).....	15
HAV1 – Hazardous Area Visitors	15
Financial Responsibility Requirements (FRR).....	17
FRR1 – Alternate Financial Responsibility Methods	17
FRR2 – Insurance Broker Letters.....	18
FRR3 – Reputable Insurer Test.....	19
FRR4 – Financial Responsibility Requirements	20
Reasonable Insurance Costs (RIC).....	22
RIC1 – Reasonable Insurance Costs	22
Insurance Terms & Conditions (ITC)	24
ITC1 – Insurance Terms and Conditions.....	24
Waiver of Claims (WOC).....	27
WOC1 – Waiver of Claims (General)	27
WOC2 – Waiver of Claims for Customers, Licensees/Permitees, Non-Government Employees, and Space Flight Participants	29
Government Responsibility for Claims (GRC).....	30
GRC1 – Government Responsibility for Government Astronauts and Government Personnel	30
Transient Property (TRP).....	40
TRP1 – Transient Property	40

Licensees as Customers (LAC).....	42
LAC1 – Licensees as Customers.....	42
Nuclear Powered Missions (NPM)	43
NPM1 – Nuclear Powered Missions.....	43
VI. Acronyms and Definitions.....	45
A. Acronyms.....	45
B. Definitions	45
VII. Recommended Regulatory Text (Proposed Additions and Deletions)	46
Appendices	49
Appendix A – Working Group Focus Questions	49
Appendix B – Overview of MPL Method	51
Appendix C – SpARC Member Voting Responses and Ballots	53

I. Executive Summary

The Part 440 Financial Responsibility Aerospace Rulemaking Committee (“SpARC” or “440 SpARC”) was composed of various individuals from the aerospace and aviation industries who represent diverse interests and viewpoints. The SpARC was divided into two working groups to develop the best recommendations with as much consensus as possible on the proposed changes to the Part 440 requirements. Relying on the broad expertise of their members, the SpARC working groups addressed the following major issues:

- Maximum Probable Loss (MPL) Calculation Methodology;
- Acceptable Methods of Demonstrating Financial Responsibility; and
- Use of Reciprocal Waivers of Claims.

The recommendations in this report are intended to provide a framework for regulatory actions and policies that promote responsible and reasonable requirements for demonstrating financial responsibility for launch and reentry services in accordance with 51 USC § 50914 and 14 CFR Part 440. Supporting text for all SpARC recommendations can be found in Section V of the report. In summary, the SpARC recommends:

- Lowering the MPL risk threshold from 1 in 10 million to 1 in 1 million.
- Maintaining the Cost of Casualty value at \$3 million.
- Updating the risk threshold used for a unique category of third parties identified as “hazardous area visitors” to appropriately limit their impact on MPL values.
- Confirming that transient property is not a contributor to MPLs and eliminating the requirement to cover transient property under a licensee’s Government property insurance or other form of financial responsibility.
- Clarifying/expanding approaches to demonstrating financial responsibility through alternative means of compliance, including letters of credit, parent guarantees, or surety bonds.
- Confirming government responsibility for claims arising from the death or bodily injury of Government personnel (including Government astronauts), or damage to Government property.
- Ensuring liability protection for commercial launch operators for hazards associated with nuclear materials.

II. Current Regulatory Landscape

A. Part 440 – Financial Responsibility

The FAA issued Part 440, *Financial Responsibility for Licensed Launch Activities*, in 1998.¹ The rules were promulgated in response to a Congressional mandate to establish financial responsibility requirements for risks arising from licensed launch and reentry activities, and to allocate risk among various parties involved in licensed operations, including the United States government (US government).² The FAA has

¹ 65 FR 56670.

² 49 U.S.C. Subtitle IX, chapter 701--Commercial Space Launch Activities, formerly the Commercial Space Launch Act of 1984, as amended (CSLA), directs the Secretary of Transportation to establish insurance (or other financial responsibility) requirements in amounts sufficient to address certain risks associated with the conduct of licensed launch activities. In addition, the CSLA provides detailed requirements for allocating risk among the various launch participants, including US government agencies involved in launch services. Enacted in 1988, this comprehensive scheme was intended to facilitate development of the US commercial launch industry by allowing it to compete effectively in the international marketplace and by providing to launch participants certain protections against the risk of catastrophic losses that could result from hazardous launch activities.

made minor changes to the regulations in the ensuing 25 years, but a regulatory review is now required to ensure that the requirements have a contemporary foundation and reflect sensible assumptions given improvements in risk calculating methodologies,³ diverse launch and reentry operations, and an increased cadence of licensed activities.

Part 440 as currently codified has become operationally ill-suited for modern mission designs. The increased launch and reentry rates and the changing role of government in the commercial space arena were not envisioned in 1998, and it is becoming increasingly administratively burdensome and costly for launch and reentry service providers to comply with the current requirements. The SpARC's work is intended to modernize the regulations and update the assumptions on which they were based, allowing for more realistic risk scenarios and a more appropriate and consistent response to addressing these risks. The SpARC's recommendations are in furtherance of ongoing industry efforts to seek greater transparency in the development of the regulatory regime to support a changing commercial launch environment, specifically as it relates to MPL calculations and methodologies.

B. US Commercial Space Launch Competitiveness Act Incorporation Rulemaking

During the SpARC's deliberations, the FAA issued a Notice of Proposed Rulemaking (NPRM) for the US Commercial Space Launch Competitiveness Act Incorporation. This proposed rule would amend Title 14 of the Code of Federal Regulations, Parts 401, 413, 415, 431, 435, 437, 440, 450, and 460, by incorporating statutory changes resulting from the United States Commercial Space Launch Competitiveness Act (CSLCA). The NPRM proposes to add new definitions, update the regulations that apply to launch and reentry services involving Government astronauts, expand the applicability of permitted operations, and add a requirement for waiver of claims agreements between space flight participants (SFPs) and operators.

The proposed rule would also update the financial responsibility requirements in Part 440. The changes are intended to align with the statutory changes that excluded Government astronauts from the definition of third parties and from the definition of Government personnel, and add SFPs as additional insureds to the insurance requirements in § 440.9. The changes also reflect the new statutory requirement for reciprocal waivers of claims to be signed between SFPs and licensees (§ 440.17). The FAA is also proposing to remove the templates for the waivers of claims from Appendices B-E of Part 440 and publish them in an Advisory Circular (AC). This proposed change would allow waivers to be updated or amended more easily than they can be as regulatory text.

³ The FAA updated its method for estimating the number of casualties in 2016. The FAA transitioned from the single-loss approach method to the insurance industry's standard practice of catastrophe modeling. Catastrophe modeling is preferable because it "estimates losses using various tools to simulate tens of thousands of scenarios to create a distribution of potential losses and the simulated probability of different levels of loss." See GAO-18-57, COMMERCIAL SPACE LAUNCH INSURANCE: FAA Needs to Fully Address Mandated Requirements, January 2018, p. 11 (GAO-18-57).

The SpARC commends the FAA's efforts to update the regulations and better align them with the statutory obligations in the CSLCA. The SpARC intends for these recommendations to provide further clarity and support to the FAA in modernizing the financial responsibility regulations and establishing a contemporary commercial space regulatory framework.

III. SpARC Charter - Tasks & Objectives

The 440 SpARC provided a forum for industry stakeholders to provide recommendations for updating Part 440, which governs administration of the financial responsibility regime for licensed launch and reentry activities in commercial space. The SpARC was tasked with providing consensus comments on improving MPL determinations, modernizing financial responsibility requirements, and creating a responsive reciprocal waiver of claims regime.⁴ The SpARC explored approaches to updating current FAA practices and assumptions, as well as new methodologies to demonstrate financial responsibility. The SpARC also conducted analyses to better inform its recommendations and confirm its proposals were reasonably achievable and responsive to industry needs and the requirements of the financial assurance and insurance underwriting markets that are critical to allowing licensees to demonstrate compliance with the financial responsibility requirements.

IV. SpARC Activities and Outputs

The SpARC took a holistic approach in making its recommendations. It considered the needs of licensees, SFP companies, and insurance providers/underwriters, as well as spaceports, industry groups, and academia. The SpARC established two working groups to address the Charter taskings and developed specific Focus Questions⁵ to guide their work.

Group 1 considered the following issues:

- MPL Threshold
- Casualty Cost
- Hazardous Area Visitors
- Transient Property
- Financial Responsibility
- Reasonable Insurance Costs
- Insurance Terms & Conditions

Group 2 considered the following issues:

- Waivers of Claim
- Government Astronauts and International Partner Astronauts
- Government Customers
- Licensees as Customers
- Nuclear Power in Commercial Space Systems

The groups met for several months to answer the Focus Questions and develop recommendations. The working groups also convened several Tiger Team sub-groups to address technical issues and provide more in-depth analysis of particular Focus Questions. Members were selected for Tiger Teams based on their experience and expertise. The Tiger Teams generated preliminary recommendations that were

⁴ [Financial Responsibility Aerospace Rulemaking Committee Charter, March 30, 2023.](#)

⁵ The Focus Questions for each working group are in Appendix A.

presented to the wider working groups to obtain feedback and achieve final consensus on the group's recommendations. The working groups also called upon several subject matter experts (SME) to gain greater clarification and insight into their tasks. SME briefings were provided on a range of issues, such as MPL calculation and validation, waivers of claims, and insurance issues related to underwriting third-party space liability and marketplace impacts.

V. SpARC Recommendations - Intent, Rationale, and Approach⁶

Maximum Probable Loss (MPL)

General MPL Observations

MPLs are often in the \$100M range. The SpARC submits that an increase to this average would significantly and definitively increase costs. Indeed, the SpARC considers an expectation to acquire \$300M-\$400M worth of insurance liability coverage unreasonable and most likely unachievable when applied across the entire commercial space industry. Moreover, setting MPLs at a value that makes the insurance costs insurmountable is contrary to the original purpose of the legislation, which was to not only protect the public, but also promote commercial space activity. The SpARC reiterates that one of the main reasons the financial protection provisions were enacted in the legislation was to provide a method to manage liability concerns that would prompt and encourage operators to develop and expand the industry. This has been effective as evidenced by the phase of the industry we are currently experiencing, with many new operators entering the market. The MPL methodology must be reviewed to ensure it continues to provide these protections and incentives to new entrants.

MPL1 – Greater Transparency Regarding MPL Methodology

MPL1	The FAA should provide greater transparency around the MPL methodology and the assumptions used in the calculations.
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INTENT: To empower the commercial space industry to work collaboratively with the FAA to improve calculation accuracy and streamline the licensing process.

RATIONALE: The SpARC notes the commercial launch industry's general frustration with the lack of transparency and participation in the FAA's MPL calculation process and methodology. For example, the SpARC is aware that the FAA, as needed, uses the ARCTOS toolset to perform flight safety analyses and compute risk profiles. The FAA funded ARCTOS, as its safety contractor, to extend the Range Risk Analysis Tool (RRAT) to calculate risk profiles. The SpARC's request for full access to the ARCTOS reports was denied, making it difficult to assess the FAA's methodology. The SpARC recognizes that there may be legitimate reasons for this refusal, but those reasons have not been shared, which deprives industry of the opportunity to fully understand how the calculations are made or to comment on the appropriateness and validity of the methodology. A lack of visibility into how this single-source tool operates to generate MPLs is a source of concern. The SpARC recommends the FAA provide greater transparency to launch and reentry operators and insurers regarding risk and MPL calculation methodology. As more fully explained below, there are compelling benefits to increasing transparency around these values.

⁶This report provides detailed information on each recommendation, including the SpARC's intent, supporting rationale, research, examples, and suggested approach.

Benefits of Increased Transparency Regarding MPL Calculation Methodology

- ***Providing information about the MPL methodology and calculation details increases the pool of resources capable of performing an MPL analysis.***

Calculating an MPL takes considerable effort from what the SpARC understands is a small pool of resources within the FAA who can properly run the tools and analyze the results. Due to the noted overlap between this analysis and the Flight Safety Analyses, there is significant expertise found in the commercial sector that could lessen the burden on the FAA. Allowing operators to directly provide inputs and determine their own preliminary MPLs would be a step toward the streamlining required for the FAA to keep pace with the growing diversity of providers and increasing cadence of operations.

- ***An industry with increased insight can make educated decisions when designing vehicles, operations, and launch sites to prevent unnecessary inflation of MPL values and reduce the overall cost to commercial, civil, and national security markets.***

An industry that is enabled to perform an accurate, preliminary MPL would provide operators the ability to make more informed decisions about locations and types of operations prior to submitting a license application to the FAA, and would further provide for necessary collaboration between these parties and the FAA to generate more realistic risk scenarios. This in turn would provide more certainty and predictability to the insurance underwriting market and other forms of financial assurance that could be relied upon to secure financial risk protection on a reasonable and consistent basis. The ability to run sensitivity studies evaluating launch and reentry sites and various hazard control strategies would be beneficial. Additionally, until licensees are empowered to perform their own analyses, the FAA should deliver a breakdown of major MPL contributors. It is beneficial to both government and industry to use this visibility for continuous improvement that could result in more appropriate risk determinations and in turn decrease costs to the licensee.

APPROACH: Create a collaborative environment where industry and government work together toward more accurate risk determinations. Specifically, the FAA should:

- Provide greater transparency around MPL methodology and publish an AC detailing how MPL calculations are performed.
- Based on AC content, provide training to launch and reentry service providers that allows them to increasingly utilize tools like RRAT or Risk Estimator Suborbital and Orbital Launch Vehicle and Entry (RESOLVE) to build their own risk profiles.
- Deliver detailed breakdowns of MPL determinations for licensees indicating which variables are key factors in the risk assessment. Regularly publish genericized data or industry-wide trends.
- Fund an independent third-party to review the current MPL methodology and request that the reviewing entity develop a comparison tool for conducting MPL analysis. The results should be compared to assess the accuracy and validity of the FAA's current methods.

These efforts would reduce government workload and provide greater certainty to operators and insurers.

MPL2 – Update MPL Risk Threshold

MPL2	The FAA should update the MPL risk threshold for third parties to a value of 1 in 1 million.
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INTENT: To ensure that MPL risk thresholds are based on actuarial science and the FAA’s original risk probability estimates.

RATIONALE: In addition to the limited information about the FAA’s MPL methodology, the SpARC also expresses concern about the MPL risk thresholds for third-party risk, which are not based on actuarial science. Calculating maximum probable loss is a challenging process and risk thresholds are key considerations in the calculations. There is a sense among launch and reentry operators that calculations associated with these thresholds are very conservative, perhaps unnecessarily so, which results in very high MPLs that are not reflective of the true risk.

- ***The current MPL threshold is not rooted in actuarial science, or based on a clear understanding of actual risk to third parties.***

In the 1996 NPRM, the FAA said:

“Because of the stringent safety requirements used at Federal range facilities, the general public in the vicinity of the range has little chance of being adversely affected by a launch event. As a result, the likelihood of a third-party casualty resulting from a launch from a Federal range should be no greater than on the order of one in one million.⁷ If the Office used one in one million as the threshold probability for determining third-party MPL, no third-party loss would reasonably be expected to occur, the MPL would be zero, and no third-party liability insurance would be required. The Office does not believe that this was the result Congress intended in adopting maximum probable loss as the basis for setting financial responsibility requirements. Accordingly, the Office’s view is that the Act requires a reasonable and measurable amount of financial responsibility by licensees and has selected the very low threshold of on the order of one in ten million probability of occurrence as the threshold probability that achieves this result.”⁸

This clearly shows that the threshold was not based on actuarial accounting, but instead was set to trigger the need to buy an amount of insurance that Congress would view as sufficient, *regardless of the actual risk*.

⁷ The SpARC acknowledges that the 1 in 1 million threshold stated in the 1996 NPRM was for launches from *federal* ranges, which were the only launch sites in 1996. Today, commercial launch sites (both private and state-owned) outnumber federal spaceports and that number is only expected to grow. The SpARC emphasizes, however, that non-federal launch sites are licensed by the FAA and are required to meet the same safety standards as federal ranges. Thus, the risk level is largely the same even if the operators are different. Moreover, if the concern is about the general public being more exposed to risk due to a commercial launch site location, the SpARC notes that Houston, the fourth largest city in America, has had an FAA-licensed spaceport at Ellington Airport since 2013.

⁸ 61 Fed. Reg. 38992, 39003 (July 25, 1996).

The SpARC further notes that when the FAA was asked to evaluate present-day missions based on potential updates to the MPL threshold, their response indicated that using generalized assumptions, it is unlikely to yield negligible MPL values when using 1 in 1 million. This should serve to alleviate the FAA's original concerns, though the SpARC does not entirely agree with their validity. Accordingly, an update to the risk threshold value is necessary to align MPL values with the FAA's original estimate of losses that could reasonably be expected to occur. The minimal third-party liability losses for licensed launch activities that have *actually* occurred over the last nearly 30-year period further support this recommendation. Even with launch failures where vehicles have been lost, the third-party liability claims have been a small fraction of the required MPL.⁹

In the 1996 NPRM, the FAA stated that MPL did not mean the maximum possible loss in a "worst case" scenario. Instead, the MPL was the "determination, in the form of a dollar amount, of the greatest potential/probable losses for bodily injury and property that can reasonably be expected to occur as a result of licensed launch activities."¹⁰ The SpARC submits that MPLs in practice have never been based on losses that could *reasonably be expected to occur* as a result of licensed launch and reentry activities, and remedying the disproportionate MPL costs is long overdue. Moreover, the SpARC views its recommendations as consistent with the ultimate purpose of the Act as noted by the FAA in the NPRM, which was to "require a reasonable and measurable amount of financial responsibility by licensees."¹¹

Additionally, this threshold was defined in regulation prior to the transition to modern MPL calculation methods, which were updated in 2015. The FAA notes in its report to Congress that this update was "more technically valid."¹² The SpARC notes that the methodology change did not include a revision to the associated risk thresholds to incorporate this increase in precision of generated data and the SpARC believes that the FAA should take this opportunity to do so.

- ***Aligning the financial risk threshold to safety risk thresholds for third-party losses would provide clarity to industry and insurers while remaining conservative.***

The MPL is a tool to implement the "risk-sharing regime" envisioned by Congress. By aligning the threshold for Maximum Probable Loss with the safety threshold for individuals (1 in 1 million), the government appropriately assumes the risk commensurate with their effective safety oversight.

The SpARC is aware that these probabilistic assessments are not identical. Part 440 risk thresholds are used to communicate the probability that financial losses will exceed the MPL, while Part 450 limits the probability of casualty of an individual. Though results are calculated differently, the underlying inputs

⁹ The SpARC is unaware of any third-party losses that have exceeded the current \$SM threshold.

¹⁰ 61 Fed. Reg. 38992, 39003. The FAA conducts a risk analysis to determine the probability an undesirable event will occur and the consequences (measured as the amount of loss) of that event. The results are then compared to a threshold probability of occurrence to determine if the results are reasonable to expect (i.e., probable). Typically, the larger or more catastrophic the potential loss or damage is, the less likely it is to occur. Loss or damage that has a likelihood of occurring that is equal to or greater than the threshold probability is considered probable and requires insurance. Loss or damage that has a likelihood of occurring that is less than the threshold probability is considered improbable, and insurance is not required.

¹¹ *Id.*

¹² *Report to Congress: FAA's Development of an Updated Maximum Probable Loss Method U.S. Commercial Space Launch Competitiveness Act (CSLCA)*, Public Law 114-90, Section 102 (2017), section I.e., p. 4 (hereinafter "Report to Congress").

are common – assessing trajectories, failure scenarios, probabilities of failure, debris, and other hazards. The licensee is responsible for hazard controls that limit safety risks. There is no restriction to the presence of third parties beyond a boundary drawn using collective and individual safety risk data. As the SpARC understands, persons that fall outside a boundary derived from E_c ¹³ can still have an impact on an MPL value, even if calculated using the same probabilities. The SpARC views this as yet another reason to update the risk threshold for MPL of third parties to 1 in 1 million. Financial responsibility will be more in line with required safety controls while large groups of third parties outside of the safety contours will continue to have a demonstrable effect on the final value. The financial risk of a failure not reasonably expected would, therefore, be shared between industry and government as envisioned by the policy that drives Part 440.

The SpARC stresses that a decrease in an MPL value is not indicative of a decrease in the approach to public safety. Rather, an updated risk threshold, which may result in lower MPLs, provides a connection that prevents the cost of insurance from being excessive when compared to the risk, even by the FAA's own probability estimates. The SpARC notes the FAA's confidence in the accuracy of the MPL numbers because, according to its calculations, there should be zero fatalities. Despite a relatively low number of launches in relation to the probabilities being discussed, operations and the safety record maintained thus far in US licensed launch and reentry activity provides some statistical justification for lowering the risk threshold.

APPROACH: The SpARC contends that there is ample evidence to support lowering the threshold to better align with the actual risks to uninvolved third parties while maintaining the requirement to purchase insurance. To that end, the SpARC recommends the FAA set the risk threshold in the MPL definition to 1 in 1 million.¹⁴ This approach would not only reduce MPLs overall but would also be more consistent with the purpose of the MPL scheme as articulated by the FAA. Accordingly, the SpARC recommends amending 14 CFR § 440.3 definitions as highlighted in red below:

“Maximum probable loss (MPL) means the greatest dollar amount of loss for bodily injury or property damage that is reasonably expected to result from a licensed or permitted activity.

(1) Losses to third parties, excluding Government personnel and other launch or reentry participants' employees involved in licensed or permitted activities and neighboring operations personnel, that are reasonably expected to result from a licensed or permitted activity are those that have a probability of occurrence of no less than one in **one** million.

(2) Losses to Government property and Government personnel involved in licensed or permitted activities and neighboring operations personnel that are reasonably expected to result from licensed or permitted activities are those that have a probability of occurrence of no less than one in one hundred thousand.”

¹³ Expected casualty is used in the space transportation industry as a measure of risk to public safety from a specific mission and is one of the factors typically used within the US government to determine if a mission may proceed or a license may be granted. Licensed activity may not exceed an expected average number of 0.00003 casualties per mission ($E_c < 30 \times 10^{-6}$). See *Expected Casualty Calculations For Commercial Space Launch And Reentry Missions* (Aug. 30, 2000) at [Ac4311fn.PDF \(faa.gov\)](#).

¹⁴ See 14 CFR § 440.3 *Maximum probable loss (MPL)*.

MPL3 – Costs of Casualty

MPL3	The FAA should maintain a cost of casualty value of \$3M for MPL calculations.
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INTENT: To avoid unjustifiable increases in insurance premiums and negative impacts on licensees' ability to purchase insurance at a reasonable cost.

RATIONALE: As legacy launch vehicles are retired, and new launch and reentry vehicles are introduced, the variety of technologies, capabilities, and experience among providers has focused attention on the cost of casualty under FAA-issued licenses. The cost of casualty used by the FAA in its calculation of MPL has remained \$3M since it was first established in 1986. This value acts as a multiplier to the number of third parties identified in risk profile analyses. In a briefing to the SpARC, the FAA's Office of Commercial Space Transportation (AST) estimated that 80% of flight third-party MPL requirements are set by casualties, not third-party properties. For pre-flight third-party MPL requirements, this is closer to 100%. Therefore, it can be expected that an increase in cost of casualty would result in a nearly proportional increase to the final MPL value.

- ***'Cost of casualty' should not be evaluated independently of conservatism in the risk profile.***

The goal of calculating an MPL is to right-size the financial risk associated with third-party liability of the licensee and the government. Financial responsibility requirements must be an attainable solution for all industry participants given that the space flight industry is composed of entities of significantly different-sized vehicles and capabilities. Unnecessarily high MPL values shift costs and additional risk to licensees, resulting in potential imbalances in the federal risk-sharing framework and potentially hindering the ability of new entrants and existing operators to participate.

Because the cost of casualty has an outsized effect on MPL calculations, it must be carefully considered to generate the appropriate final values. The positive track record of the US space flight industry has resulted in no bodily injury to uninvolved third parties in the ~1,000 US launches since 1986. Where the risk profile methods discussed in previous recommendations are based in technical analyses and historical behaviors, there is little to no relevant data that can provide a probabilistic value for this multiplier.

Data from aviation settlements in the US indicates the average value of a life lost in a general aviation accident (e.g., light aircraft, business jets, helicopters) is \$5.2M.¹⁵ FEMA estimated the statistical value of a life at \$7.5M as of 2020.¹⁶ Recent exceedingly large "nuclear" verdicts in aviation insurance have also driven some insurance companies to take a more cautious approach to aerospace liability coverages. While these can help assess a reasonable order of magnitude for the cost of casualty variable, they are not directly analogous to the launch or reentry use case. Using a risk threshold of 1 in 1 million (as recommended, noting 1 in 10 million is used today) to generate a number of casualties generates

¹⁵ See Keystone Law, November 3, 2021 at <https://www.keystonelaw.com/keynotes/how-is-compensation-calculated-after-an-aviation-accident>.

¹⁶ See FEMA Benefit-Cost Analysis (BCA) Toolkit 6.0 Release Notes, July 31, 2020 at [Microsoft Word - BCA Toolkit Release Notes July 2020 \(fema.gov\)](#).

conservative MPL values. Similarly, the MPL is intended to cover a range of claims from injury to loss of life. The SpARC believes that, for these reasons, the current \$3M multiplier is sufficient to address the goals of the MPL calculations.

APPROACH: The SpARC recommends that the FAA maintain the current \$3M cost of casualty value to ensure that insurance for launch and reentry activity remains readily available and reasonably priced. The SpARC emphasizes that there have been no third-party bodily injury events from ~1,000 US launches in nearly 40 years since 1986. This empirical evidence supports the recommendation that launch and reentry liability requirements do not need to increase and encourages the insurance community to price insurance in accordance with the low-risk nature of the activity with respect to human life. Given the low number of launch and reentry liability claims in the US, and the magnitude of claims when they do occur,¹⁷ the SpARC expects capacity to be available for launch and reentry operators if the cost of casualty remains at present values.

¹⁷ Although the space insurance market was impacted in 2023 due to two very large claims, it is important to note that these were *property* claims involving damage to first-party assets. While some launch liability insurance companies also write first-party space property coverage, the two lines of business are very different and distinct from one another.

Hazardous Area Visitors (HAV)

HAV1 – Hazardous Area Visitors

HAV1	The FAA should develop tiered categories of individuals exposed to hazardous areas/operations such that different risk thresholds apply to each category for purposes of determining the MPL and third-party liability insurance requirements.
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INTENT: To create a distinction between people in or near hazardous areas/operations based on their acceptance of the risks and their purpose for being in the area.

RATIONALE: The SpARC considered whether invited guests or visitors inside hazardous areas should continue to be covered under third-party liability insurance or under a different financial responsibility arrangement.

- ***It is reasonable to treat third parties who have knowingly entered a “hazardous area” differently than the uninvolved public as demonstrated by the current use of a different risk profile for Government personnel and neighboring operations personnel.***

The SpARC noted the FAA’s Report to Congress¹⁸ acknowledging that the *government* MPL threshold of 1E-5 reflects Government personnel’s acceptance of greater risk. This is also consistent with the MPL definition that specifically excludes third-party losses for Government personnel, other launch/reentry participants, employees, and neighboring operations personnel.

The SpARC is aware that, in some cases, individuals that are not Government personnel, as defined by § 440.3, or otherwise involved in the launch, may nevertheless be present in hazardous areas or near hazardous operations during licensed activities. This has occurred with “future mission customers” (i.e., customers for future missions who would normally be excluded from the hazard area but are allowed in the area to witness launch operations), or for authorized observers (i.e., a customer’s family members, or government/non-government officials allowed to observe a mission).¹⁹ These individuals have knowingly assumed a greater level of risk than traditional third parties who are not involved in the licensed operation and have not connected themselves to the licensed operation for some other purpose. In most cases, these individuals have received some sort of briefing outlining the risks

¹⁸ *Report to Congress* at Appendix section b.1), p. 11.

¹⁹ For example, in November 2020, a licensee requested a partial waiver to 14 CFR 417.411 (c) and (d), 417.113 (b), and 417.13 (a) to enable Government Astronaut families, government officials, and other individuals to visit the launch pad during hazardous operations. The waiver conditions required the licensee to assume liability, hold the US government harmless for harm to any site visitors permitted under the waiver, and have an insurance policy sufficient to cover the people present at the launch site under the waiver. NASA also submitted a letter concurring with the licensee’s request. The FAA granted the waiver with respect to the Government Astronaut families, but not for the others. In contrast, in March and October 2021, a licensee submitted a similar waiver request and the FAA granted the waiver for Government Astronaut families, selected non-US government visitors, and US government employees in a leadership role, such as the NASA Administrator, Chief of Space Operations for the US Space Force, and any support personnel these leaders request to accompany them. Customers and press were specifically excluded from the approval letter. The waiver conditions remained the same.

associated with being present to witness launch activities that involve hazardous operations, and they have explicitly agreed to assume those risks. Yet despite this acceptance of risk, the current regulations treat these individuals as third parties, or the equivalent of uninformed members of the uninvolved public. Moreover, their impact on MPL values as an informed guest or visitor is the same as an uninformed member of the public. The SpARC considers it prudent to create a different category for these individuals so that they do not disproportionately contribute to MPL values. Such an approach will support US government activities by allowing US government launch customers such as NASA and the USSF to observe FAA-licensed activities conducted for commercial customers. It will also foster US competitiveness.

APPROACH: The SpARC recommends establishing three categories of individuals in hazardous areas. A licensee may choose to demonstrate the existence of these groups during their operation in order to generate a more appropriate effect on the MPL. The FAA should also consider how these categories might be incorporated into safety regulations found in Part 450.

1. The first category would include Government personnel as defined in § 440.3 and Part 450. These are individuals that are involved in the licensed activity and currently assessed at the 1E—5 threshold for MPL.
2. The second category would include licensed activity observers, which consists of individuals who have knowingly exposed themselves to licensed activities that involve hazardous operations as something other than a customer or a third-party casual observer of a licensed activity. This may include invitees of the licensee such as future mission customers, members of the media, or any other individual who is knowingly present in hazardous areas or near hazardous operations in connection with licensed activities and who has agreed to accept such risk in consideration for being allowed to witness such activities by the licensee. These individuals would also be assessed at the 1E—5 threshold applicable to Government personnel due to their knowing acceptance of the risks.
3. The third category would be for traditional public third parties. These are individuals that are not involved or connected to the licensed operation or licensee and are unaware of the risks. These individuals would be assessed at a lower MPL threshold (i.e., 1E—7).

Financial Responsibility Requirements (FRR)

FRR1 – Alternate Financial Responsibility Methods

FRR1	The FAA should ensure that the same standards applied to demonstrations of financial responsibility using insurance are also applied when demonstrating financial responsibility using insurance alternatives.
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INTENT: To expand financial responsibility demonstrations beyond insurance to include commonly used financial instruments in addition to commercial insurance as evidence of financial responsibility for launch and reentry service providers.

RATIONALE: The statute (51 U.S.C. Ch. 509, also popularly referred to as the Commercial Space Launch Act or CSLA) clearly allows operators to demonstrate financial responsibility using means other than a traditional policy of insurance. However, the language of Part 440 does not always reflect the acceptability of such alternative means. Further, in practice the FAA appears to have adopted a presumption that alternative methods of financing are not acceptable, requiring operators to justify their use.

Financial instruments are used in a variety of other industries. For example, hazardous waste regulations allow financial self-tests (demonstration of liquidity), corporate guarantees, letters of credit, trust agreements, and surety bonds to demonstrate financial responsibility to operate a hazardous waste site. The SpARC recommends explicitly adopting these instruments into the space flight industry because they are already legitimized and understood in other industries. Operators who propose to utilize means of demonstrating financial responsibility that are well understood and commonly accepted in other industries should not have to satisfy any higher burden of proof than operators demonstrating financial responsibility through a traditional policy of insurance.

APPROACH: The FAA should not create unnecessary hurdles for operators seeking to use commonly used financial instruments to demonstrate financial responsibility. The SpARC recommends the FAA develop a list of acceptable insurance alternatives based on an established set of parameters and a baseline understanding of financial tools. Operators should be allowed to use any instrument identified on the list of alternatives, and only be required to provide a more detailed explanation when proposing to use something unconventional. The SpARC does not intend its recommendation to create overly prescriptive requirements, but instead, the FAA should provide general guidance and licensees can determine how to comply. Acceptable financing methods already considered and approved should be included in Part 440 for clarity, using language which does not preclude the use of other means.

The FAA should also consider publishing an AC that lists acceptable financing methods that are available for operators to use. The AC should be updated as new methods of financing arise and become generally accepted as suitable financial instruments. The FAA should limit itself to listing the alternative means of financing that are recognized by the FAA, rather than providing specific guidance for their use. This is because the FAA lacks the expertise to speak definitively on financial matters and should refer to existing financial services guidance or partner with an appropriate financial services standards body to develop guidelines for the space flight industry.

The SpARC recommends amending the regulatory text in Part 440 to facilitate these changes. The full recommended regulatory text amendments are in Section VII below.

FRR2 – Insurance Broker Letters

FRR2	The FAA should eliminate the requirement for insurance broker letters.
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INTENT: To remove the administrative burden of obtaining insurance broker letters for licensed operations.

RATIONALE: The SpARC considers broker letters to be a redundant third-party certification of compliance that is completely unnecessary because both the licensee and the FAA have a duty to confirm financial responsibility through direct evidence of insurance. The SpARC debated the value of broker letters, but ultimately determined that they were unnecessary because the broker is just another party being inserted into the process to conduct a review. If we assume that the licensee and the FAA are complying with their obligations (which we should assume), obtaining a broker letter is an additional step that does not provide any additional assurance. Moreover, there is no indication that broker letters are viewed with any particular favor by the FAA or that they expedite licensing, and in some cases, other forms of financial responsibility may be used that would be inappropriate for a broker to provide their opinion on, such as parent guarantees.

APPROACH: If the intent is to provide evidence of financial responsibility to the FAA, eliminating the administrative step of obtaining a broker letter will save time and increase efficiency. Accordingly, the SpARC recommends eliminating the requirement to obtain a broker letter. This change is reflected in the recommended regulatory text included in Section VII below.

FRR3 – Reputable Insurer Test

FRR3	The FAA should not assess insurance providers' reputations.
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INTENT: To eliminate the FAA's involvement in determining whether a licensed insurer is reputable.

RATIONALE: The SpARC considers that there are safeguards in place for insurers licensed to do business in the United States to ensure that they meet reputable standards. US-based insurers are heavily regulated by state licensing authorities. The responsibility of such insurers has been evaluated by an appropriate licensing authority that has the requisite expertise to evaluate actuarial studies, financial records, and other data required to determine responsibility. Similarly, non-US-based insurers are also subject to similar licensing and regulation in their countries. Accordingly, both US- and non-US-based insurers should not be required to confirm their reputation to the FAA, and the FAA should not have a role in determining the responsibility of such insurers.

This approach will be advantageous for industry and the FAA because it encourages a wider variety of insurance providers, including new entrants that may not have an established reputation in the industry, but do have the financial means to accommodate claims as evidenced by the state insurance regulator's approval of their proposed insurance package.

APPROACH: The SpARC recommends the FAA amend its regulations to remove the requirement that an insurer be "of recognized reputation and responsibility" for both US and non-US licensed insurers. This change is reflected in the recommended regulatory text included in Section VII below. The SpARC clarifies that the requirement to use only licensed insurers should remain.

FRR4 – Financial Responsibility Requirements

FRR4	The FAA should establish a mechanism to release MPL funds back to operators following launch and reentry activities in the event of a launch or reentry incident, accident, or mishap.
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INTENT: To ensure that financial responsibility demonstrations such as parent guarantees and letters of credit are terminated expediently in the event of a launch incident, accident, or mishap.

RATIONALE: When a licensee is demonstrating financial responsibility using means other than insurance pursuant to § 440.9(f), neither the regulations nor the licensing documents make sufficiently clear the financial responsibility release process in the event of a launch or reentry incident, accident, or mishap. Section 440.11(b) is vague, providing only that “[f]inancial responsibility required under this part may not be replaced, canceled, changed, withdrawn, or in any way modified to reduce the limits of liability or the extent of coverage, nor expire by its own terms, prior to the time specified in a license or permit order, unless the FAA is notified at least 30 days in advance and expressly approves the modification.”

The FAA is delegated the authority to establish financial responsibility requirements “sufficient to address certain risks associated with the conduct of licensed launch and reentry activities.”²⁰ Put differently, the FAA is required to ensure that licensees demonstrate financial responsibility and prove that they can meet any liability obligations. In some cases, licensees demonstrate financial responsibility by depositing the entire MPL amount into an account as liquid assets. If an incident, accident, or mishap occurs that does not result in significant injuries or property damage to third parties and/or damage to Government property (or the property of any of its agencies, contractors, or subcontractors), the licensee would have no liability obligations to any third parties or to the US government and should be able to retrieve the deposited funds. The SpARC notes that the FAA has stipulated how and when the funds should be deposited, but has not provided any instructions or guidance regarding how the funds are returned to the licensee. For example, one publicly filed launch license provides that “[i]n the event of an incident, accident, or mishap...[licensee] shall maintain in the account a portion of the MPL funds commensurate with the estimated loss or damages determined in consultation with the Associate Administrator....”²¹ However, it is not clear by what process the FAA would concur with the determination of no damage or approve the withdrawal of the MPL funds from the account.

APPROACH: The FAA should amend § 440.11(b) to explicitly outline the process by which financial responsibility using means other than insurance (e.g., MPL funds deposited into an account as liquid assets) pursuant to § 440.9(f) would be released or wound down in the event of a launch incident, accident, or mishap. Specifically, revise § 440.11(b) to include the following elements:

1. Define a representation and a warranty certificate template a licensee would deliver to FAA pursuant to which a licensee would state:
 - a. launch or reentry vehicle impact location;
 - b. radius of scatter of debris field;
 - c. whether or not there were any reports of and/or any known personal injuries or property damage to third parties;
 - d. if known injuries, describe type and loss;

²⁰ See Financial Responsibility Requirements for Licensed Launch Activities, 63 Fed. Reg. 45592 (August 26, 1998).

²¹ License No. LRLO 17-105 (Rev 4).

- e. if known damage to property, describe extent and estimated value;
 - f. whether or not there were any reports of and/or known damage to property of the United States and/or any of its agencies, contractors and subcontractors; and if known, describe extent and estimated value;
 - g. state approximate total projected loss value inclusive of (c) and (d) above;
 - h. state value of financial responsibility commensurate with (e) above that would be maintained and the amount of financial responsibility that licensee would withdraw or winddown within X days from the delivery of the certificate.
2. Define timeframe within which the FAA can respond to the licensee certificate with any objections and/or request for additional information necessary to approve the withdrawal or winddown of financial responsibility. This timeframe should not exceed 30 days, consistent with timeframes set forth in § 440.11(a) and FAA statements that 30 days represents “sufficient time to assess the possible consequences of a launch anomaly”²²;
 3. Define timeframe within which licensees must respond back to the FAA’s objection and/or request for additional information;
 4. Define timeframe within which the FAA must approve or deny the withdrawal or winddown of financial responsibility; and
 5. Define explicit criteria or circumstances the FAA must demonstrate to deny withdrawal or winddown of financial responsibility.

²² See Financial Responsibility Requirements for Licensed Launch Activities, 63 Fed. Reg. 45592 (August 26, 1998), explaining the rationale for requiring insurance or demonstration of additional financial responsibility.

Reasonable Insurance Costs (RIC)

RIC1 – Reasonable Insurance Costs

RIC1	The FAA should adopt a reasonableness standard for insurance costs based on the Federal Acquisition Regulations.
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INTENT: To establish a clear understanding of what constitutes a "reasonable cost" or "reasonable rates" with respect to insurance costs for launch and reentry service providers.

RATIONALE: The CSLA financial responsibility requirements for a launch or reentry license include an insurance or financial responsibility limit of no more than \$500M for death, bodily injury, or property damage or loss to third parties resulting from an activity carried out under the license and an insurance or financial responsibility limit of \$100M for damage to Government property in the care, custody, or control of the licensee or transferee. With regards to available insurance for these limits, a reactive, ever-changing insurance market requires periodic analysis to understand what insurance is or is not available, and then determine if that limit is available at "commercially reasonable" pricing. The insurance market that provides aerospace coverage is not large and encompasses other risks such as airline liability, which may affect the overall capacity available to insure aerospace-related risks. Accordingly, insurance companies will analyze each licensee or transferee for each launch or reentry license and may limit what they are willing and able to provide. This makes it difficult to accurately state what coverage will be universally available and "affordable" on a broad, long-term basis for different types of activities.

The SpARC further notes that defining the "reasonable cost" of insurance is also difficult due to the increasing diversity of launch and reentry vehicles and payloads and the range of differently capitalized companies conducting launch and reentry activities. What constitutes a reasonable cost for one payload, company, or vehicle could be vastly different from another. The SpARC recommends the FAA develop objective criteria for determining the "reasonable cost" of insurance, and exercise caution to avoid imposing higher insurance or financial responsibility costs on companies.

Under Federal Acquisition Regulations,²³ a cost is reasonable if, in its nature and amount, it does not exceed that which would be incurred by a prudent person in the conduct of competitive business. This provides a framework for determining the reasonableness of costs that can be adapted to many different industries. As the MPL for a specific program approaches the maximum insurance or financial responsibility limit requirements (e.g., \$500M for third parties and \$100M for Government property), insurance costs may become "unreasonable" depending on the licensee or transferee's purchasing power with the insurance markets, their balance sheet approach, and their available budget to purchase the MPL limits. At higher limits, insurance capacity can become scarce and expensive, particularly if the licensee or transferee has had previous claims. A single, significant, and catastrophic claim may deplete any accumulated profit in the launch and reentry liability insurance marketplace, causing insurance rates to surge and limits to be withdrawn or become unavailable. Smaller, lower-priced launch vehicle providers will be affected to a greater degree than larger launch vehicle providers, as insurance costs are a higher percentage of the overall per-mission cost for small launchers. As MPL amounts approach the available insurance market capacity, or the limit of available insurance, the price may increase disproportionately for each additional dollar of insurance capacity. As such, this insurance may be

²³ 48 CFR 31.201-3(a).

available only at a price that a “prudent person” would determine to be unreasonable. In theory, the reasonableness of insurance or financial responsibility limits should be addressed as part of the MPL analysis, but this is not always the case, as the insurance brokerage community has seen large MPLs imposed on smaller launch vehicles.

APPROACH: FAA policy requires that insurance requirements and insurance costs be reasonable. The SpARC recommends the FAA adopt a reasonableness standard in accordance with Federal Acquisition Regulation § 31.201-3. Under this standard, the cost of insurance would be deemed reasonable if the premium charged by the insurance company is within a normal or acceptable range for similar non-space related activities. In contrast, the cost of insurance would be unreasonable if it surpassed the point at which a company could remain competitive in the global launch market. The SpARC considers it prudent to adapt this standard to Part 440 to ensure a clear understanding of what constitutes “reasonable cost” or “reasonable rates.”

Insurance Terms & Conditions (ITC)

ITC1 – Insurance Terms and Conditions

ITC1	The FAA should amend the terms and conditions for insurance requirements and demonstration of financial responsibility to more clearly include insurance policy alternatives.
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INTENT: To ensure that the Terms and Conditions for insurance set forth in the regulations include insurance policy alternatives, such as parent guarantees or surety bonds, and to resolve ambiguity regarding how the terms and conditions relate to such insurance alternatives.

RATIONALE: The language of the CSLA, found at 51 U.S. Code § 50914, does not preference insurance over other methods of proving financial responsibility. However, Part 440 seems to be drafted with a presumption that operators will obtain insurance. The titles of sections 440.9 *Insurance requirements for licensed or permitted activities* and 440.13 *Standard conditions of insurance coverage* each refer to “insurance” without reference to financial responsibility and the language of these sections includes terms which, on their face, would only apply to insurance. This can create ambiguity regarding how an operator seeking to use insurance alternatives should interpret these sections.

APPROACH: The SpARC recommends that terms and conditions for insurance required by Part 440 should be worded in a manner that incorporates alternative methods of demonstrating financial responsibility other than insurance, where applicable. When certain terms and conditions are applicable only to insurance policies on their face, the regulations should be amended to clarify that alternative, but equivalent, guarantees and protections can also satisfy the regulatory requirements. The SpARC further recommends the FAA clarify the requirement in § 440.11(a)(2) to require insurance policies to remain in full force and effect for 30 days following launch/payload separation.

In addition to the foregoing recommendations, the SpARC also reviewed each section of Part 440 that prescribes insurance terms and conditions, and provides below a summary of key SpARC comments and recommendations by section. The recommended regulatory text can also be found in Section VII below.

14 CFR 440.9 Insurance requirements for licensed or permitted activities.

- The SpARC recommends changing the name of this section to “Insurance **and financial responsibility** requirements for licensed or permitted activities.” This is necessary to reflect that requirements in this section apply to both insurance and alternative financial arrangements.
- Subsection (b): The SpARC recommends removing the reference to “additional insureds” because the concept of “additional insureds” is only applicable to insurance policies and does not relate to insurance alternatives. Moreover, § 50914 of the CSLA does not use the term “additional insured,” but provides that an insurance policy or other demonstration of financial responsibility “shall protect” the individuals and groups listed. “Protection” can occur through an “additional insured” status, or through contractual guarantees of coverage. Thus, the SpARC recommends aligning the regulation with the statute. In the case of insurance alternatives, this protection can be provided through contractual guarantees.
- Subsection (f): The SpARC recommends adding language recognizing that the terms of this section can be met by demonstrating financial responsibility which meets the terms and conditions of § 440.9 or provides equivalent guarantees.

§ 440.11 Duration of coverage for licensed launch, including suborbital launch, or permitted activities; modifications; and

§ 440.12 Duration of coverage for licensed reentry; modifications

The SpARC further recommends the FAA clarify and supplement the requirements in § 440.11(a)(2) and § 440.12(a)(2) requiring insurance policies or other forms of financial assurance to remain in full force and effect for 30 days following launch/payload separation or reentry or ignition of a launch vehicle, particularly as those requirements affect means of financial assurance other than an insurance policy.

In the case of the 30-day coverage requirement, the SpARC believes that the duration of coverage relates to third-party claims that could arise from the events described in the regulations, namely payload separation associated with an orbital launch or 30 days from ignition of the launch vehicle performing the orbital launch; or for reentry activities, 30 days from initiation of reentry flight or such longer period as determined by the FAA in the event of a reentry abort. The 30-day period established by the regulations was deemed sufficient by the FAA to identify any launch or reentry failures or anomalies that could result in bodily injury or property damage after the completion of the licensed activities. The SpARC does not believe that the 30-day period was intended to cover any on-orbit type activities that are not covered by an FAA license.

In fact, in the NPRM the FAA stated that the statutory requirement for a licensee to obtain insurance or otherwise demonstrate financial responsibility refers to providing compensation for claims “resulting from an activity carried out under the license.”²⁴ Based upon this language, the Office’s view is that insurance requirements attach upon commencement of licensed launch activities but do not necessarily cease upon completion of a licensed launch, defined for orbital launches as the point when any remaining fuel is emptied from the upper stage, the vehicle tank is vented and otherwise “safed,” and the upper stage is no longer subject to the operator’s control. Hazard analyses performed by the Office to determine maximum probable loss have shown that the greatest exposure for which insurance is typically required exists at the time of lift-off and flight, and that there is virtually no quantifiable risk to third parties or to Government property after completion of a nominal launch. The Office has found that 30 days is an appropriate amount of time in which to determine whether an orbital launch has been nominal or whether an anomaly has occurred that could affect risks to third parties or the government. For this reason, historically, the Office has provided in license orders applicable to orbital launches that insurance coverage is required to attach upon commencement of licensed activities and remain in force “for a period of thirty (30) days following payload insertion into orbit.” For suborbital launches, insurance has been required to be maintained at least until motor impact and payload recovery, and for reentry activities, insurance is required for 30 days from initiation of reentry flight. However, in the event of an anomaly resulting from an activity carried out under the license, the Office may amend the license order to require that the licensee maintain insurance until the Office reasonably determines that risks to third parties and Government property are sufficiently small such that insurance is no longer needed.

²⁴ 49 U.S.C. 70112(a)(1).

§ 440.13 Standard conditions of insurance coverage.

- The FAA should review each of the requirements in this section to clarify whether and how they apply to alternative financial arrangements. The FAA should also consider renaming this section to specifically include insurance alternatives.
- Subsection (a)(1): The SpARC notes that this term on its face applies only to insurance policies. However, similar protections can be provided through alternative financial arrangements by placing funds intended to satisfy these requirements in escrow.
- Subsection (a)(2): The SpARC notes that amounts of financial coverage other than insurance are typically described in terms of a single launch or licensed activity, rather than an “occurrence,” and recommends this section be revised to reflect that.
- Subsection (a)(3): The SpARC notes that there is a potential contradiction between the first sentence of this section, which requires that each policy must pay claims from the first dollar of loss, and the second sentence, which allows licensees to obtain policies with deductibles, provided the deductible amount is placed in escrow. This contradiction can be resolved by re-wording the first sentence to apply to “each policy or other demonstration of financial responsibility,” which would include escrow amounts.

Waiver of Claims (WOC)

WOC1 – Waiver of Claims (General)

WOC1	The FAA should clarify the requirements, signatories, and review process for waivers of claims/cross-waivers.
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INTENT: To identify which parties are required signatories for a waiver of claims (also known as cross-waivers), to confirm that the FAA will not review certain waivers of claims, and to clarify flow down and indemnification requirements for property brought onto a launch or reentry vehicle that belongs to a person that is not on the vehicle.

RATIONALE: The FAA is required to sign a waiver of claims as a matter of law,²⁵ but there is concern that as commercial space flights increase, the FAA's signatory process will be a bottleneck and source of delay. There is also a need for clarity regarding when FAA reviews are required and how flow down requirements will be applied to commercial space flight contracts.

APPROACH: The SpARC recommends that the FAA amend its waiver of claims process to allow waivers to be executed legally and sufficiently in a more streamlined manner. Specifically, the SpARC recommends that waiver of claims be incorporated directly into the contracts with all affected parties, including contractors, subcontractors, crew, SFPs, customers, and any other parties as defined in the current regulations. The SpARC further recommends that a different approach would be more suitable, such as an authorization of the licensed or permitted activity.

General Issues

- Single Contract - The FAA appears to be moving away from the requirement to have a single contract encompassing all parties addressed by Part 440. The SpARC welcomes this policy shift because multi-party cross-waivers in a single contract are difficult to administer. For example, if a launch operator has an agreement with a customer but not all property or individuals to be launched are identified at the time of signing, the original contract would need to be revised to incorporate the persons and property added later. To avoid these logistical hurdles, the SpARC recommends that the FAA allow, but not mandate, a single contract.
- Automatic Signing of Waivers of Claim - The SpARC recommends that the FAA automate its processes such that reciprocal waivers of claim between an SFP and the FAA, where the FAA has previously found the waiver language regulatorily compliant, would be automatically signed by the FAA. This would create a streamlined process that reduces uncertainty around what the FAA considers to be legally sufficient with respect to waivers of claim. It would also incentivize adoption of standard waivers of claim language by industry,

²⁵ See 51 USC Ch. 509. 51 USC 50914 (b)(2) - Under the Commercial Space Launch Act, the Secretary is required to "make, for the Government, executive agencies of the Government involved in launch services or reentry services, and contractors and subcontractors involved in launch services or reentry services, a reciprocal waiver of claims with the licensee or transferee, contractors, subcontractors, crew, space flight participants, and customers of the licensee or transferee, and contractors and subcontractors of the customers, involved in launch services or reentry services under which each party to the waiver agrees to be responsible for property damage or loss it sustains, or for personal injury to, death of, or property damage or loss sustained by its own employees or by space flight participants, resulting from an activity carried out under the applicable license."

recognizing that changing the terms would require engagement with FAA well in advance of a launch and could be a source of delay.

- FAA Review of Waivers of Claims – The SpARC recommends that the FAA continue its practice to not review a reciprocal waiver of claims to which it is not a party. An FAA review of these waivers would create a bottleneck and contribute to delays. The SpARC notes that this is consistent with the FAA’s current practice to not review reciprocal waivers between an SFP and a licensee or permittee, or the so-called “flow down” waivers between a licensee or customer and their respective contractors and subcontractors. The SpARC recommends the FAA add language to the preamble for this rulemaking reiterating its policy decision to not review flow down cross-waivers.
- Timeframes & Templates – The FAA requires waivers to be submitted 30 days before the launch. The biggest drivers of the timeframe are changes to the template or the licensee’s desire to use something other than the template, which often results in legal review, additional questions, or negotiating language/terms. The FAA encourages early submission and compliance with the templates and has engaged with licensees so that each waiver can cover multiple missions or multiple flights, but time is still required to review the template, match it against the payload, and complete the signature process. The SpARC acknowledges that using the approved template correctly can reduce processing time but notes that there is a need for the FAA to develop templates that address a wider range of operations. For example, there are currently no templates for known customer flights, or waiver templates between the SFP and the licensee. The SpARC recommends that these templates be developed as soon as possible. The FAA should also revise the templates to remove repetitive language. Having multiple documents with nearly identical language leads to frustration and complacency and makes it difficult to determine which payload is on which mission. For example, an on-orbit mission requires multiple cross-waivers for launch and reentry with the federal government, the licensee, and SFPs that act as customers.
- Electronic Signatures – The SpARC also recommends the FAA standardize the process for electronic signatures. The SpARC acknowledges that the FAA has its own internal policy for FAA electronic signatures, but the processes for electronically signing contracts vary across operators. The lack of standardization results in multiple processes where each operator’s waiver of claims is handled differently. The SpARC recommends uniformity in order to expedite waiver of claims processing. Finally, the SpARC commends the FAA’s proposal to move the templates from the Appendices into an AC. The SpARC considers this an ideal approach to ensure that existing templates can be easily updated, and new templates can be added to accommodate new types of operations, new technology, or customer relationships without the need for rulemaking.

WOC2– Waiver of Claims for Customers, Licensees/Permitees, Non-Government Employees, and Space Flight Participants

WOC2	The FAA should allow launch operators complete discretion regarding requirements for waivers of claims and cross-waivers, including for parties that hold multiple roles on the same flight or over a series of flights.
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INTENT: To clarify the waiver of claims requirements for parties acting in dual roles on a single space flight.

RATIONALE: The SpARC considered whether the existing regulations accommodate parties acting in dual roles on commercial space flights. For example, SFPs are not considered customers, but there are occasions where an SFP on a commercial flight has paid to bring a payload(s) aboard. In those cases, the person would be both an SFP and a customer, which could create liability and insurance concerns. The SpARC considered the following scenarios:

- Scenario 1. – The person is an SFP on Flight A and has a payload on Flight A. The SpARC considers the regulations unclear regarding whether the person is an SFP or a customer for Flight A. The SpARC notes that this “dual status” could have implications for insurance requirements and recommends the FAA clarify this issue because the person’s property could damage another customer’s property and give rise to claims.
- Scenario 2. – The person is an SFP on Flight A and brought aboard the property of someone not participating in Flight A in person. The person not onboard Flight A is a customer by virtue of his or her property being on the vehicle, but that person is not in privity with the licensee. Again, the SpARC notes the current regulations are unclear regarding whether the person lacking privity (sometimes referred to here as the “off-board person”) is required to enter into a waiver of claims and with whom. The SpARC further notes that the off-board person’s property could cause or suffer damage, which could lead to disputes and claims. Thus, the SpARC contends that the FAA should permit licensees to address the requirement for off-board persons/customers lacking privity in the manner most efficient for the licensee, provided that the licensee meets statutory requirements. Specifically, the SpARC recommends that the FAA not object to a licensee obtaining a waiver from a person lacking privity with the operator. Likewise, the licensee should be able to require an SFP to flow down the waiver requirements of Chapter 509 to a customer lacking privity with the licensee, or obtain an indemnity agreement from the SFP for any property the SFP brings aboard that belongs to an off-board person. Additionally, the SpARC recommends that the FAA, in the interest of avoiding a bottleneck and in keeping with the FAA’s current practice of not inspecting “flow down” cross-waivers, adopt the same practice for the flow down of statutory and regulatory requirements to customers not in privity with a licensee.

APPROACH: The SpARC recommends that individual licensees have complete discretion regarding cross-waivers for SFPs and the SFP’s customers. This discretion will allow the licensee to balance risk against efficiency in a manner most suitable for their operations. This is especially necessary because the current regulations do not address all possible operating scenarios as evidenced by the examples provided above. The SpARC also recommends the FAA share its legal view of these issues and the basis for its view.

Government Responsibility for Claims (GRC)

GRC1 – Government Responsibility for Government Astronauts and Government Personnel

GRC1	The FAA should accept responsibility for harm to US government personnel and US government astronauts as required by 51 U.S.C. Ch. 509. The FAA should not require licensees to obtain insurance to cover claims for injury, death, or property damage of Government employees involved in a licensed activity.
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INTENT: To ensure that the FAA adheres to its Congressional mandate to assume responsibility for claims arising from bodily injury, death, or property damage or loss sustained by Government astronauts, Government customers, and Government employees.

RATIONALE: The current FAA interpretation of regulations is incorrect as to a licensee’s demonstration of financial responsibility and liability for Government astronauts and Government personnel. Specifically, for US government personnel, the FAA’s current interpretation of the CSLA and accompanying regulations improperly imposes financial responsibility (usually through insurance) and liability requirements on FAA licensees. Although Government personnel are third parties under Chapter 509, they are third parties for whom Chapter 509 requires the US government to accept responsibility.

Under the law, Government astronauts are not third parties. Therefore, a licensee’s demonstration of financial responsibility, including the liability insurance required of a licensee, might not cover claims brought by Government astronauts. Further exacerbating this problem, Chapter 509 does not require US government astronauts to execute reciprocal waivers of claims (often referred to as cross-waivers) with FAA licensees. Current regulations are not clear that the FAA’s execution of a cross-waiver obligates the US government to assume responsibility for personal injury or death suffered by a US government astronaut. This creates uncertainty with respect to an FAA licensee’s obligations to insure against this potential risk, and its exposure to liability for claims brought by US government astronauts. The FAA’s regulations and reciprocal waivers of claims need to clearly reflect that the US government assumes responsibility for any harm to US government astronauts.

Background on Current Law and Regulations

As stated above, Chapter 509 sets forth requirements establishing the liability scheme for parties participating in FAA licensed launch or reentry activities. This liability scheme requires the procurement of third-party liability insurance, or other demonstration of financial responsibility, protecting licensees from third-party claims for property damage and bodily injury resulting from a launch or reentry mishap for claims up to the maximum probable loss, beyond which funds may be appropriated by Congress. This liability scheme is further underwritten by statutorily required reciprocal waivers of claims that require each party involved in licensed activities, including the US government, to waive claims against each other for damage to their property and employees.

For the established liability scheme to operate as intended by Congress, and to avoid a breakdown of this structure, all identified parties must squarely fit into the correct category, and their rights and obligations be clearly understood and identified. Accordingly, the SpARC recommends that the FAA adopt clear regulations that:

1. Require the US government to accept responsibility for harm to Government personnel as required by 51 U.S.C. Ch. 509.

2. Acknowledge that US government astronauts are not third parties but rather employees of the US government involved in FAA-licensed activities. As with Government personnel, the US government should accept responsibility for harm to US government personnel who are astronauts as required by Ch. 509.
3. Express language that the FAA should not require licensees to obtain insurance or demonstrate financial responsibility to cover claims for injury, death, or property damage of US government personnel or astronauts involved in a licensed activity and recognize that the statute requires the FAA, as the federal entity signing the statutorily-required reciprocal waivers of claims on behalf of the US government, accept responsibility for any harm to US government employees, its contractor personnel, and US government astronauts.²⁶

Legal Analysis

The FAA's current approach and interpretation giving rise to the problems described above ignore the plain language of Ch. 509 and cherry pick from portions of Ch. 509 that do not apply. Further, the FAA's rationale for doing so is overly reliant upon purported limitations of federal appropriations law. The FAA has acknowledged that it has latitude in its ability to accept risk to Government employees and property. The MPL calculations utilize a different probability threshold than the uninvolved public, indicating that the FAA is aware Government personnel are not equivalent third parties to those whose claims are intended to be accounted for in the MPL.

For Government astronauts, the current regulations leave doubt as to their status as third parties (despite the statutory definition) and the application of the cross-waivers and assumption of liability of Ch. 509 as it pertains to the US government's responsibilities for its astronauts. Despite the statute, the burden of this acceptance of risk is primarily shifted to and undertaken by the licensee through required insurance or other demonstration of financial responsibility and exposure to liability. Additionally, as the role of government as a customer of launch and reentry services becomes increasingly common, there is a likelihood of increased Government personnel and astronauts contributing to these MPLs. The intent of the risk-sharing regime is then further compromised, increasing financial burdens on licensees outside of their control.

Even though US government personnel are third parties, they are third parties for whom, under the statute, Congress has mandated that the US government assume financial responsibility. Employees of private launch participants also meet the definition of third parties, but the FAA does not consider these parties in the MPL assessment and instead requires private launch participants to assume responsibility for harm to their own employees. This is because although employees are third parties under the statute, they are third parties for whom each of the launch participants, including the US government, must agree to assume responsibility. Similarly, an FAA licensee should not have to obtain insurance or demonstrate financial responsibility to cover harm to US government personnel or US government astronauts.

House Report 114-119 accompanied the draft bill which became the US Commercial Space Launch Competitiveness Act (CSLCA). In this most recent update to the statute governing commercial space launch liability, we are reminded that:

²⁶ This paper does not address foreign government astronauts who would be defined as space flight participants under Title 51. Presumably the same logic would apply to them when their governments sign the reciprocal waivers of claims as either first-tier customers or Part 440 customers.

The Commercial Space Launch Act Amendments of 1988 (P.L. 100-657) established a tiered risk-sharing regime for third-party liabilities associated with commercial space launch (Section 5(a)). The purpose of the regime is to limit the liability of launch companies for claims made by the uninvolved public. As the federal government is responsible for the licensure and range control of launches, the government also shares in the liabilities associated with the inherently risky activity of space launch.

The laws passed by Congress to accomplish this “risk sharing” rely on two core concepts: first, limiting financial risk by requiring that all parties involved in licensed activities waive claims and accept responsibility for their respective property and employees, and second, providing the protective tiered mechanism for payment of third-party claims that includes insurance and government’s conditional payment of excess claims. Eliminating the responsibility for claims from other involved parties allows licensees, customers, and the Government to understand and control their relative risk.

Industry seeks clear and unambiguous regulations with respect to the assumption of responsibility by the government for Government personnel and Government astronauts. Industry should not be required to procure insurance to cover potential risks because of the failure of the government to clearly assume responsibility for these categories of individuals, as intended under Ch.509. Demonstrations of financial assurance should only be required where clearly stated and understood by the regulations. This facilitates the ability to communicate these risks to the underwriting market and the market’s ability to write insurance policies that clearly align with regulatory requirements. In sum, industry requests that the FAA abide by the policy calls Congress made in Ch.509 over allocation of risk, and accept the responsibility that Congress placed on it, thus relieving industry of the burden of having to decide whether to protect itself against potential risks that are not clearly stated or understood, and that are not supported by the law or the accompanying regulations.

Statutory Obligations

Overriding industry objections and its statutory obligations, the FAA in 1998 announced that, because the US government did not accept its obligation to be responsible to other launch participants for harm to US government employees or employees of US government contractors, it would require licensees to obtain insurance or otherwise demonstrate financial responsibility to cover such claims (and the claims of the government’s contractors) as third parties.²⁷ In promulgating its final rule, the FAA claimed:

Whereas each [private party launch participant] undertakes a contractual obligation to indemnify other launch participants from claims of its own employees through the inter-party waiver agreement, the Government is unable to accept this contractual obligation absent express authority to do so because it would amount to an unfunded contingent contractual liability which is prohibited by appropriations laws. The agency does not believe that the statute authorizes the Government to undertake an additional unfunded obligation except if a policy

²⁷ *Financial Responsibility Requirements for Licensed Launch Activities; Final Rule*, 63 Fed. Reg. 45592, 45602-03 (Aug. 26, 1998) (“Final Rule”).

exclusion is deemed “usual” or the available limits of the policy are exhausted. In either of those events, the Government would be responsible under the CSLA for covering those claims, subject to Congress appropriating funds for that purpose.²⁸

Notably, while the FAA reasoned that all employees of the various entities involved in launch activities technically meet the statutory definition of “third parties,” the statutorily mandated third-party liability policy required of licensees was not intended to be responsive to employees of private launch-related entities, as those entities would be covered by the reciprocal waiver to assume such liabilities for their own personnel.

However, the FAA selectively relied upon the statutory definition of third parties to make licensees cover possible claims from Government employees **and** the employees of Government contractors through the licensee’s third-party insurance.²⁹

Although this approach deviated from the FAA’s practice before 1996, and notwithstanding that industry commenters raised arguments regarding the statutory requirement under Ch. 509 that **all launch participants** (including the US government) had to accept responsibility for harm suffered by their own employees, the FAA’s final rule dispensed with this obligation despite the statutory mandate to the contrary. The FAA had previously taken the same position in its notice of proposed rulemaking two years earlier.³⁰ Because the FAA failed to properly resolve seeming conflicts in the statute in either its notice of proposed rulemaking or its final rule, it should revisit the issue now.

Relatedly, with respect to Government astronauts, although they are not third parties, the regulations do not require that Government astronauts execute cross-waivers, and thus create the same conundrum that exists with respect to Government personnel – that the launch licensee must obtain third-party liability insurance or demonstrate financial responsibility covering these astronauts because the US government does not explicitly and affirmatively accept responsibility for their claims under Ch. 509 or any implementing cross-waivers.

The FAA’s rationale for its approach with respect to Government personnel was largely based on its claim that it was necessary to ensure that the US government did not bear any greater risk than it affirmatively accepted under the statute. Particularly, the FAA concluded that its approach would “avoid violation of the Anti-Deficiency Act which prohibits the Government from agreeing to assume an unfunded contingent liability absent specific statutory authority to do so.”³¹ The FAA determined that there was no language in the CSLA that represented a “clear, unequivocal removal of this restriction.”³²

²⁸ *Id.* See also *id.* at 45603 (claiming that the US government “is foreclosed from insuring this risk under appropriations laws”), 45605 (claiming that “the Anti-Deficiency Act precludes the Government from accepting an unfunded contingent liability”).

²⁹ *Id.* at 45596.

³⁰ *Financial Responsibility Requirements for Licensed Launch Activities; Notice of Proposed Rulemaking*, 61 Fed. Reg. 38992. (July 25, 1996).

³¹ 63 Fed. Reg. 45597.

³² *Id.* at 45605.

However, aside from referencing the Anti-Deficiency Act once and repeating its concern regarding an “unfunded contingent liability” a total of nine times, the FAA never provided any semblance of fiscal law analysis to justify its conclusions. Nor did the FAA ever approach the Comptroller General or the General Counsel of the Government Accountability Office (GAO) for an advance decision or, otherwise, informal technical assistance with regard to this issue. In the absence of any fulsome legal examination and conclusive determinations as to whether: 1) the FAA has statutory authority to assume responsibility for claims brought by Government employees and contractors involved in a launch; or 2) the FAA is prohibited by appropriations law from signing a reciprocal waiver and assumption of responsibility memorializing the same, these remain open questions subject to differing interpretations and conclusions 16 years after promulgation of these rules. As such, the SpARC recommends that the FAA use this rulemaking as an opportunity to revisit these matters and bring its Part 440 regulations in line with the statutory grant of authority set forth in Ch. 509.

1. *The FAA should agree to be responsible for harm to US government and contractor employees, including US government astronauts, as required by law.*

Ch. 509 requires that:

The Secretary of Transportation shall make, for the Government, executive agencies of the Government involved in launch services or reentry services, and contractors and subcontractors involved in launch services or reentry services, **a reciprocal waiver of claims with the licensee** or transferee, contractors, subcontractors, crew, space flight participants, and customers of the licensee or transferee, and contractors and subcontractors of the customers, **involved in launch services or reentry services under which each party to the waiver agrees to be responsible for** property damage or loss it sustains, or³³ **for personal injury to, death of, or property damage or loss sustained by its own employees** or by space flight participants, resulting from an activity carried out under the applicable license.³⁴

Under delegations from the Secretary, the FAA now makes and enters into those reciprocal waivers of claims with licensees, and should therefore—as explicitly required by this provision—“agree to be responsible for...personal injury to, death of, or property damage or loss sustained by its own employees...” This provision clearly provides for the unqualified acceptance of this responsibility, and as such, provides the express authority the FAA claimed was absent.

³³ Just as the FAA interpreted the “or” as an “and” when it required private party launch participants to assume responsibility for both their own property damage *and* harm to their employees, the FAA should interpret the statute as it applies to the government to include assuming responsibility for its own property damage *and* harm to its own employees. It would be strange to conclude that Congress meant parties to be able to pick the damages they were willing to pay.

³⁴ 51 USC 50914(b)(2) (emphasis added).

When interpreting a statute, the courts recognize—and the FAA should as well—that the provisions Congress enacted must mean something and that statutory provisions should be given their plain meaning. Accordingly, section 50914(b)(2)’s requirement that the US government assume responsibility for harm to its employees must mean something. Again, the FAA concluded that assumption of responsibility was synonymous with indemnification in 1998, and characterized it as such in the context of private launch participants indemnifying each other for their employee’s claims.³⁵ The FAA appears to have so characterized these assumptions of responsibility out of a notion that, were it to have done otherwise, it would be interfering in state workers’ compensation programs.³⁶ Having mischaracterized the assumption of responsibility as an indemnification of other launch participants in the context of private launch participants, the FAA then bootstrapped that mischaracterization so that the US government might avoid the responsibility Congress had imposed on it for assumption of responsibility for claims of injury to, death of, and loss of property for Government **and** Government contractor employees.³⁷ The FAA did so on the grounds that appropriations laws forbade indemnification absent express authority.

What the FAA’s attempt ignores, however, is that Congress itself did not characterize section 50914(b)(2)’s requirement as an indemnification but as something different, namely, as an assumption of responsibility for employee losses. The terminology matters, and the SpARC recommends that the FAA not treat the two concepts as the same. As the FAA itself recognizes in Part 440’s appendices, where the appendices require licensees to do both, indemnification and an assumption of responsibility are different concepts.³⁸

Nor may the FAA find a basis elsewhere in section 50914—such as the second sentence of section 50914(b)(2)—for declining to assume responsibility for harm to government and government contractor employees.³⁹ According to the FAA’s briefings to the SpARC, the agency actually places Government personnel in the Government property category (i.e., as covered by section 50914(a)(1)(B)) when it sets insurance requirements.

This practice is likely not appropriate as the statute does not provide a basis for treating Government personnel as property. Although the second sentence of section 50914(b)(2) states “the waiver applies only to the extent that claims are more than the amount of insurance or demonstration of financial responsibility required under subsection (a)(1)(B) of this section,” the referenced subsection

³⁵ *Final Rule*, 63 Fed. Reg. at 45602.

³⁶ *Id.*

³⁷ *Id.*

³⁸ *See, e.g.*, 14 CFR part 440, appendix A, pars. 2.a, 3.a, and 5.a.

³⁹ Additionally, the NPRM contains an important error about the nature of the waiver. The FAA appears to have mixed up the government assumption of responsibility for harm to its personnel with the waiver of excess claims:

The Office does not believe that explicit statutory authority is provided by the Government waiver of claims provision of the Act, which limits the Government’s waiver to excess property damage claims. 49 U.S.C. 70112(b)(2).

1996 NPRM, 61 Fed. Reg at 38999. This is incorrect. To the contrary, the statute also provides for waivers of claims for “personal injury to, death of, or property damage or loss sustained by its own employees.” 51 U.S.C. 50914(b)(2).

does not provide grounds for the FAA to decline its statutory responsibility to waive its claims and assume financial responsibility for personal injuries or death sustained by the US government's own employees (and employees of Government contractors). To the contrary, subsection (a)(1)(B) confines itself to "damage or loss **to Government property** resulting from an activity carried out under the license," (emphasis added) while remaining conspicuously silent on Government personnel. Because it is silent regarding employees, this provision can only apply to Government property. People are not property under US law or under the common law meaning of the terms, and the FAA may thus not treat the two as the same. No such caveat referencing Government property exists in the language of the statute. Pursuant to the doctrine of *expressum facit cessare tacitum*, when a matter is expressly set forth in statute, any matter omitted from such a statement is presumed to have been omitted intentionally. Thus, the FAA should revisit its interpretation and should not ignore Congressional direction and intent this time.

The FAA also attempted to rely on section 50914(e) in the final rule, when it reasoned:

[T]he CSLA authorizes the Secretary of Transportation to establish financial responsibility requirements, consistent with the CSLA, to protect the Government, its agencies, and personnel from liability, death, bodily injury, or property damage or loss as a result of a launch or operation of a launch site involving a facility or personnel of the Government. The appropriate way to reconcile this provision with the Government's assumption of responsibility obligations in 49 U.S.C. 70112(b)(2) is to conclude that the Government accepts responsibility for its employees' losses but, as in the Government's waiver for property damage, only to the extent that they exceed required insurance or other demonstration of financial responsibility.⁴⁰

Here, instead of addressing the statutory provision at issue head on and dealing with the selective reference to Government property, the FAA relied on a general provision—authority to set financial responsibility requirements—to override a specific provision elsewhere in the law—the assumption of responsibility for harm to government personnel.

As the FAA is aware, when two provisions conflict, the courts give greater weight to the more specific one.⁴¹ The FAA should do the same here because section 50914(b)(2) explicitly calls for the US government to agree to be responsible for its employees, which is a more specific requirement than a general authority to set financial responsibility requirements.

⁴⁰ *Final Rule* at 45602-03.

⁴¹ Legal Interpretation from Mark W. Bury, Assistant Chief Counsel for Regulations, FAA to Courtney Graham, Associate General Counsel, NASA, Dec. 23, 2013, available at https://www.faa.gov/about/office_org/headquarters_offices/agc/practice_areas/regulations/interpretations/Data/interps/2013/Graham-GC, NASA-2 2013 Legal Interpretation.pdf.

2. *The FAA has not adequately explained why the Anti-Deficiency Act prevents the agency from assuming responsibility for the claims of Government personnel and why licensees must demonstrate financial responsibility to cover claims by these personnel in order for the agency to avoid an “unfunded contingent liability.”*

The issue becomes one of whether the appropriations laws upon which the FAA relied, including the Anti-Deficiency Act, prevent an assumption of responsibility on the part of the US government. If they do, section 50914(b)(2) provides express authority otherwise. If they do not conflict, the FAA then has adequate reason to fix Part 440 to align with its statutory responsibility. The FAA’s NPRM argued that treating Government personnel as third parties and enabling any claims to be covered by the licensee’s third-party insurance was necessary to “protect[]” the Government from “assuming an unfunded contingent liability for the successful claims of [such personnel] against other launch participants without explicit statutory authority” and that such a result would be “contrary to appropriations law.”⁴² As such, the FAA’s final rule claimed its interpretation would “avoid violation of the Anti-Deficiency Act, which prohibits the Government from agreeing to assume an unfunded contingent liability.”⁴³ However, as stated above, the FAA’s rulemaking was devoid of any meaningful appropriations law analysis regarding the statutory provision itself and the fiscal implications of assumption of responsibility for Government personnel claims.

First, countenancing the FAA’s interpretation that assumption of responsibility in this instance is tantamount to or effectively the same as an agreement to indemnify other launch participants from claims by Government personnel brought directly against them, the primary appropriations law source covers such matters.⁴⁴ According to the Red Book, while the FAA is correct that the government may not enter into an agreement to indemnify another party where the amount of the government’s liability is indefinite, indeterminate, or potentially unlimited, where express statutory authority exists for the government to do so, such agreements would not violate the Anti-Deficiency Act or the Adequacy of Appropriations Act.⁴⁵ In this case, and as discussed above, section 50914(b)(2) provides just such an express statutory authority both to assume responsibility for US government personnel and government astronauts, and third-party claims above the MPL financial assurance requirements demonstrated by the licensee. If the FAA was convinced that such authority did not exist in 1998, it could have easily solicited GAO for a legal opinion to confirm such a conclusion, yet it declined to do so.

Moreover, setting aside the precise question of the boundaries of the statutory provision at issue, if the FAA was concerned about fiscal law implications with regard to assumption of responsibility for Government personnel claims in 1998, those concerns were also certainly present when the FAA determined to assume responsibility for any and all such third-party claims in excess of the liability insurance that it would require licensees to obtain because the government’s liability would likewise be “unfunded” in such cases. If appropriations laws were truly a concern, it is unclear why the agency would likewise risk violating such legal prohibitions by committing to unfunded contingent liability in the event the same situation arose after the exhaustion of the licensee’s insurance coverage. Indeed, the government’s obligation to pay claims by third parties arising out of launch activities is premised upon the likelihood that “additional legislative authority” would be required to

⁴² 1996 NPRM, 61 Fed. Reg. 38998-99.

⁴³ Final Rule, 63 Fed. Reg. 45597.

⁴⁴ See GAO-06-382SP, Principles of Appropriations Law, 3d. Ed.—Vol II. at 6-59 (“Red Book”).

⁴⁵ *Id.* at 6-59, 6-60.

be enacted to provide for the payment of such claims.⁴⁶ If the FAA can find that excess responsibility is not a concern under appropriations laws absent existing dedicated or administratively reserved appropriations, why is it not permissible to do so from the first dollar of loss? Further, the FAA cannot pick and choose which liabilities it has the authority to assume (i.e., liability in excess of insurance) while claiming other liabilities (i.e., US government personnel and possibly astronauts) exceed its statutory authorization.

3. *The FAA should amend its regulations to relieve licensees from liability for claims by Government personnel and Government astronauts and from the related obligation to purchase insurance for harm to Government personnel.*

The FAA's current position is that licensees must be financially responsible, usually through the purchase of insurance coverage, for harm to US government personnel and, by implication, for harm to Government astronauts. The FAA based this decision in part on section 50902(26) of Chapter 509, under which it concluded that US government personnel were third parties because the definition does not specifically list US government employees (or personnel) as an exception to the third-party designation.⁴⁷ Although this may be a permissible interpretation, the analysis should not end there. Instead, the FAA should also take into account other relevant parts of section 50914. For Government astronauts, although not defined as third parties, other ambiguities in the regulations and the FAA's stated interpretation of section 50914(a)(1)(B) raise similar objections as to the shifting of liability from Government astronauts onto licensees.

When Congress contemplated a licensee purchasing insurance or demonstrating financial responsibility to cover harm to federal government interests, it only intended the coverage to apply to property damage. This is evident from section 50914(b)(2), which states "the [reciprocal] waiver [of claims] applies only to the extent that claims are more than the amount of insurance or demonstration of financial responsibility required under subsection (a)(1)(B) of this section." The FAA ignored this clear signal and chose to require licensees to obtain coverage for Government personnel under (a)(1)(B),⁴⁸ which applies to claims for property damage, not to claims for harm to persons. This language shows that when Congress meant the federal government to accept responsibility for harm to its employees, it was not confusing personnel and property. Therefore, the FAA should not be requiring licensees to obtain insurance coverage for US government personnel.

⁴⁶ See 51 U.S.C. § 50915.

⁴⁷ *Final Rule*, 63 Fed. Reg. at 45604; *1996 NPRM*, 61 Fed. Reg. at 38998. The FAA failed to make the same determination for the employees of private launch participants, although much of the same logic should have applied.

⁴⁸ See FAA Briefing to the SpARC in July 2023 at Appendix B.

In the 1996 NPRM, the FAA may also have relied erroneously on section 50914(a)(4)—then section 70112(a)—to identify Government personnel as potential third-party claimants under coverage obtained by a licensee.⁴⁹ The FAA, after quoting from this provision, which requires that insurance protect Government personnel to the extent of their potential liability for involvement in launch and reentry services at no cost to the Government, stated that:

Therefore, under the liability policy, Government personnel are both protected parties, or additional insureds, and potential claimants.

For context, there are two types of coverage at issue: coverage for bodily harm to Government personnel, and coverage for liability exposure Government personnel may face. There are, accordingly, two issues with the NPRM's conclusion that Government personnel may be claimants on the basis of section 50914(a)(4). First, section 50914(a)(4) applies to the potential liability these individuals may face for their involvement in a launch or reentry, not to their own bodily injury. Thus, if the FAA used section 50914(a)(4) to justify its requirement insurance coverage for bodily harm, it did so erroneously. Second, one provision of this section highlights a relevant difference between (a)(1)'s requirement for third-party liability coverage and (a)(4)'s requirement for potential liability Government personnel may face. Only with the latter does Congress spell out that coverage must be obtained "at no cost to the Government." Thus, although liability coverage for those protected by (a)(4) must be obtained at no cost to the government, the same limitation does not apply to bodily injury coverage, particularly for Government personnel.

APPROACH: The best way to reconcile these myriad statutory directions is to recognize that Congress intended Government personnel to be treated not as third-party members of the public, but as third parties involved in licensed activities for whom the government assumes responsibility. Although not third parties, the same holds true for Government astronauts as it applies to the US government's assumption of liability for any claims Government astronauts may bring against a licensee. Thus, if the FAA were to seek a Congressional appropriation of funds under section 50915 for third-party claims, it could include injured Government personnel, including Government astronauts, in its request to Congress.

In light of the fact that the FAA has been incorrectly requiring its licensees to purchase third-party liability insurance or demonstrate financial responsibility to cover possible harm to Government personnel and Government astronauts, and in light of the fact that this rulemaking provides an opportunity to correct an error of statutory interpretation, the FAA may and should:

- (i) recognize that even if US government personnel are third parties, they are third parties for whom the US government has assumed financial responsibility, and
- (ii) make clear that Government astronauts are employees of the US government for whom the government should accept responsibility for claims brought in connection with their participation in licensed activities.

⁴⁹ 1996 NPRM at 38999.

Transient Property (TRP)

TRP1 - Transient Property

TRP1	The FAA should explicitly state that US government transient property, non-federal launch/reentry sites, and third-party property at federal ranges or non-federal launch/reentry sites are not included under Government property insurance or MPL calculations.
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INTENT: FAA to confirm that transient Government property is not included in MPL calculations or covered under the licensee's Government property insurance.

RATIONALE: MPL Issues - The FAA treats fixed⁵⁰ and transient⁵¹ Government property differently for MPL purposes. Fixed property is considered in the FAA's MPL calculation for Government property, while transient property is not. Transient property is not included in MPL calculations because the Government presumably has the option of not moving the property into a risk area or of moving the property away, and thus protecting it from any possible harm from the licensed activity.

Insurance Coverage – Although transient property is not included in the MPL calculation, if government transient property is damaged due to a launch or reentry mishap, the government can claim the loss under the licensee's Government property insurance.⁵² This appears to conflict with the 1998 final rule, which stated that "a government owned payload is not covered by statutorily required Government property insurance and the US government agency customer accepts responsibility for property damage to the payload."

Noting this apparent discrepancy, the SpARC recommends that the FAA clarify whether transient property is covered under the licensee's Government property insurance. This clarification is necessary for the following reasons:

- Insurance Challenge – Insurance underwriters may assert that there is no coverage for transient property because transient property is not included in MPL calculations.
- Administrative Challenge – Transient property, by its nature, constantly flows in and out of launch sites. Determining MPL amounts for transient property would require adjustments for every US government launch and for every US government launch campaign. This would result in amending insurance requirements on an almost daily, launch-by-launch basis, which could not be feasibly administered.
- Insurance Costs and MPL Calculations – Including "transient" property in MPL calculations will lead to higher MPL requirements (and the need to procure higher limits of financial

⁵⁰ Fixed property refers to facilities that are immovable and to equipment that is intended to be left in place.

⁵¹ For the purposes of this exercise, the SpARC considers government "transient" property to include government "owned" spacecraft/payloads, launch vehicles, temporary ground support equipment and other such Government property that is not "Real Property." It is further assumed that this property is temporarily at a US/US territory launch site. The SpARC welcomes a more formal definition.

⁵² https://www.faa.gov/about/plans_reports/congress/media/CSLCA_Section102_Report_to_Congress.pdf.

responsibility). This will have a direct impact on launch providers and lead to increased launch third-party liability insurance premiums for them.

- Insurance Coverage for Transient Property - There is an active and robust “first party property” insurance market available to provide coverage for property at launch sites. This coverage is often referred to as Property Insurance, Transit Coverage, Launch Site Cover, Pre-Launch Coverage, and other similar names. Commercial satellite manufacturers, commercial satellite owners/operators, and launch providers routinely procure this coverage for their respective transient or non-fixed property. This insurance is also available to the US government and appears to provide an appropriate coverage framework. Nevertheless, the US government typically does not procure insurance coverage, making coverage for US government transient property insecure and uncertain.
- Third-Party Transient Property – As stated above, there is an active space insurance market for first parties that have transient property at launch sites. Our recommendation is that we do not extend this practice to third parties. If nothing else, this will lead to higher MPLs and increased insurance costs to launch providers.
- Non-Federal Launch & Reentry Sites – Again, as stated above and to be consistent, we do not believe transient property should be extended to non-federal launch and reentry sites. Real Property (i.e., “fixed”) can continue to be covered for these sites.

APPROACH: Insurance is rarely the best (or only) risk management strategy. Other actions can and should be taken to reduce or eliminate the risk of harm. As noted in the FAA Report cited above, the US government can protect its transient property from harm by moving it or keeping it away from licensed launch operations. The SpARC considers this the best course of action and recommends the FAA engage with its federal partners to establish protocols for safely managing US Government transient property. For real property, the SpARC recommends that it remain covered under the licensee’s MPL damage to Government property insurance requirement, not to exceed \$100M, as that property is fixed and cannot be moved.

The SpARC further recommends that US government transient property remain excluded from MPL calculations, and that other parties’ transient property and/or launch sites also be excluded. To do otherwise would significantly increase the cost of insurance to launch providers and be administratively unmanageable.

Finally, it is the SpARC’s view that transient property is not currently covered under the licensee’s Government property insurance, nor should it be. This view is supported by the FAA’s language in the 1998 Final Rule, and also “reflects current agency practice in establishing risk-based financial responsibility requirements for third-party liability and Government property damage.”⁵³ The SpARC notes, however, the apparent loophole that may allow the US government to claim losses for damage to transient property under the licensee’s Government property insurance. The SpARC recommends that the FAA clarify its position in this regard; and to the extent FAA’s interpretation differs from that of the SpARC, the SpARC further recommends that the FAA amend its position to align with the SpARC’s view.

⁵³ 63 Fed. Reg. 45592 (final rule August 26, 1998) (codified at 14 CFR 440).

Licensees as Customers (LAC)

LAC1 – Licensees as Customers

LAC1	The FAA should provide legal guidance on simultaneous licensed activity and clarify the distinct roles of the licensee and licensee/customer.
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INTENT: To avoid confusion about the specific responsibilities of each licensee, the applicable MPL values/third-party liability insurance, and cross-waivers of liability.

RATIONALE: One of the original Focus Questions the SpARC considered was whether the existing regulations were sufficient to accommodate a party acting as both a licensee and a customer. The SpARC was initially of the view that while a party could have dual status (e.g., customer and SFP),⁵⁴ a party could not be both a customer and a licensee for a particular phase of a mission. This view was based on the FAA's definition of customer and licensee.⁵⁵

As deliberations progressed, the SpARC acknowledged that, while we may not currently conduct operations with dual simultaneous license activities, the FAA could write separate licenses in the future for a launch provider and a spacecraft operator that govern the launch phase of the same mission. This could occur in situations where a spacecraft customer or crew member performs operational activities or otherwise impacts the pre-flight and/or ascent phases of the mission. For example, Operator A conducts a launch with Operator B as the customer. Operator A is a licensee and Operator B is also a licensee because duties are performed on Operator B's spacecraft during the launch countdown or during the launch phase that constitute launch activities requiring a license. As a result, the people onboard Operator B's spacecraft and involved in the launch activities fall within two categories at the same time. Thus, for Operator A, the individual would be classified as an SFP while also being considered crew under Operator B's license.

The ARC considers it imperative for operations involving multiple licenses for a distinct mission phase, including where a participating individual could be classified as having more than one designation (e.g. SFP and crew), to be clearly defined and delineated. This will support licensees and licensee/customers obtaining adequate third-party liability coverage for their specific licensed activities based on a thorough understanding of the scope of their licensed activities, the classification of mission participants such as SFPs, and the corresponding risks. Ambiguity about the specific responsibilities of each licensee should be avoided because it could result in confusion about the applicable MPL and corresponding third-party liability policy in the event of a launch mishap. These dual roles also need to be assessed in the context of the required cross-waivers of liability, which could be impacted by the party's classification under the existing statutes and regulations.

APPROACH: The SpARC recommends that the FAA provide its legal view of simultaneous licensed activity. The SpARC further recommends that the FAA explicitly describe the distinct roles of the licensee and licensee/customer in the licenses governing the mission so that each party understands the risks and its insurance coverage and responsibilities under Part 440. The FAA should also clarify how it will address any potential overlap in MPL calculation and corresponding insurance or financial responsibility requirements in this scenario.

⁵⁴ See Recommendation WOC2.

⁵⁵ 14 CFR § 440.3.

Nuclear Powered Missions (NPM)

NPM1 – Nuclear Powered Missions

NPM1	The FAA should amend Part 440 to state that the US government will provide liability protection to commercial launch operators from hazards associated with nuclear materials if the payloads containing such materials are approved by the FAA.
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INTENT: To provide a regulatory and financial responsibility framework permitting the use of space systems containing nuclear materials (e.g., power sources or heating units) that could greatly enhance the benefits provided by the commercial space launch industry, and to ensure that the US government provides liability protection to commercial launch operators for hazards associated with nuclear materials.

RATIONALE: The US government encourages the development and use of commercial nuclear power systems. As noted in the 2019 *Presidential Memorandum on Launch of Spacecraft Containing Space Nuclear Systems*:⁵⁶

The ability to use space nuclear systems safely and sustainably is vital to maintaining and advancing United States dominance and strategic leadership in space. For United States launches of space nuclear systems, the Federal Government must ensure a rigorous, risk informed safety analysis and launch authorization process. This memorandum establishes processes for Federal Government launches and launches for which the Department of Transportation (DOT) has statutory authority to license commercial space launch activities (commercial launches). These processes include transparent safety guidelines and are forward-looking and amenable to effective use of space nuclear systems for heating, power, and propulsion.

While nuclear missions may be seen as valuable and necessary for the US, they remain uninsurable in the commercial market. Space-related insurance policies contain standard nuclear material exclusions, making the US government liability protection the only available option to protect a launch or spacecraft operator's nuclear missions. Given insurance is not available to cover nuclear claims, adopting the existing Part 440 financial responsibility requirements that require the licensee to insure up to the MPL is not executable. Consequently, first dollar liability coverage must be provided by the DOT to cover the nuclear related portion of any third-party claims resulting from a launch mishap. Addressing these deficiencies in Part 440 is a reasonable way to close the gap between current insurance necessity and commercial market reality. A significant factor in considering extending liability coverage in these instances is that new commercial power systems would be subject to stringent design requirements and safety analyses, both under the FAA's jurisdiction and the jurisdiction of other federal agencies, as recognized in the recent AC addressing Launch and Reentry of Space Nuclear Systems (AC 450.45-1 published October 20, 2023).

⁵⁶ NSPM-20, available at <https://trumpwhitehouse.archives.gov/presidential-actions/presidential-memorandum-launch-spacecraft-containing-space-nuclear-systems/>.

The SpARC originally had many other concerns regarding how commercial nuclear systems will be regulated and licensed. With the publication of AC 450.45-1, these concerns were addressed. The SpARC commends the FAA on the timely publication of this informative guidance document.

APPROACH: The SpARC recommends that Part 440 be amended to state that the US government will provide “first dollar” liability protection to commercial launch and reentry licensees for hazards associated with nuclear materials, if the payloads containing such materials are approved by the FAA and appropriately coordinated with other regulatory agencies. Liability protection is necessary because nuclear risks cannot be underwritten by the launch and reentry liability underwriting market so there is no reasonably available commercial option for insurance. The SpARC notes that the statute envisions government support when insurance is unavailable due to usual exclusions such as for harm arising out of nuclear missions. Thus, the expectation is that the government will provide support for the insurance that it expects operators to have in accordance with the statute. The SpARC’s position is that, to the extent the commercial launch industry relies on financial protections under the CSLA, those protections should be recognized as extending to nuclear operations as well, and further regulatory assurance should be provided to extend first dollar liability protection from the US government for nuclear related claims.

VI. Acronyms and Definitions

A. Acronyms

CSLCA – Commercial Space Launch Competitiveness Act

CSLA – Commercial Space Launch Act

MPL – Maximum Probable Loss

RRAT – Range Risk Analysis Tool

RESOLVE – Risk Estimator Suborbital and Orbital Launch Vehicle and Entry

B. Definitions

Update § 440.3 Definitions:

Maximum probable loss (MPL) means the greatest dollar amount of loss for bodily injury or property damage that is reasonably expected to result from a licensed or permitted activity.

(1) Losses to third parties, excluding Government personnel and other launch or reentry participants' employees involved in licensed or permitted activities and neighboring operations personnel, that are reasonably expected to result from a licensed or permitted activity are those that have a probability of occurrence of no less than one in **one** million.

(2) Losses to Government property and Government personnel involved in licensed or permitted activities and neighboring operations personnel that are reasonably expected to result from licensed or permitted activities are those that have a probability of occurrence of no less than one in one hundred thousand.

VII. Recommended Regulatory Text (Proposed Additions and Deletions)

Recommendations for 14 CFR § 440.9 Insurance requirements for licensed or permitted activities.

- Amend the title of 14 CFR § 440.9 as follows:

“Insurance **and financial responsibility** requirements for licensed or permitted activities.”

- Amend 14 CFR § 440.9 (b) as follows to align with the statute and clarify that “additional insureds” do not apply directly, or in the same manner, to alternative financing, and allow equivalent guarantees.

“(b) A licensee or permittee must obtain and maintain in effect a policy or policies of liability insurance, in an amount determined by the FAA under paragraph (c) of this section, that protects the following persons **as additional insureds** to the extent of their respective potential liabilities against covered claims by a third-party for bodily injury or property damage resulting from a licensed or permitted activity:

- (1) The licensee or permittee, its customer, and their respective contractors and subcontractors, and the employees of each, involved in a licensed or permitted activity;
- (2) The United States, its agencies, and its contractors and subcontractors involved in a licensed or permitted activity; and
- (3) Government personnel.”

- Amend 14 CFR 440.9 (f) as shown to:
 - acknowledge that certain terms and conditions contained in this part may not apply directly to alternate means of showing financial responsibility, but that equivalent guarantees can be provided;
 - provide examples of potentially acceptable methods for demonstrating financial responsibility; and
 - incorporate principles from the Federal Acquisition Regulations § 9.104-1 that describe financial responsibility as having “adequate financial resources” or “the ability to obtain them.”

“(f) In lieu of a policy of insurance, a licensee or permittee may demonstrate financial responsibility in another manner meeting the terms and conditions for insurance of this part or **providing equivalent guarantees. Alternative means of demonstrating financial responsibility are intended to demonstrate that the licensee or permittee has adequate financial resources, or the ability to obtain them, to cover claims described in this Part, and may include but are not limited to a letter of credit, parent guarantee, surety bond, or financial self-test.** The licensee or permittee must describe in detail the method proposed for demonstrating financial responsibility and how it ensures that the licensee or permittee is able to cover claims as required under this part.”

Recommendations for 14 CFR § 440.13 Standard Conditions of Insurance Coverage

- Amend 14 CFR § 440.13 (a)(2) to confirm that, for alternative financing, available resources will typically be demonstrated for each licensed activity.

“(2) Policy limits shall apply separately to each occurrence **or licensed activity** and, for each occurrence/**license** to the total of claims arising out of a licensed or permitted activity in connection with any particular launch or reentry.”

- Amend 14 CFR § 440.13 (a)(3) as follows regarding payment from the first dollar of loss.

“(3) Except as provided in this section, each policy **or other demonstrated financial responsibility** must pay claims from the first dollar of loss, without regard to any deductible, to the limits of the policy. A licensee or permittee may obtain a policy containing a deductible amount if the amount of the deductible is placed in an escrow account or otherwise demonstrated to be unobligated, unencumbered funds of the licensee or permittee, available to compensate claims at any time claims may arise.”

- Amend 14 CFR § 440.13 (a)(5) to clarify that each exclusion must be specified on the insurance certificate:

(5) Each **relevant** exclusion from coverage must be specified **on the certificate of insurance**.

- Amend 14 CFR § 440.13 (a)(6) as follows:

“(6) Insurance shall be primary without right of contribution from any other **applicable** insurance that is carried by the licensee or permittee or any additional insured.”

- Amend 14 CFR § 440.13 (a)(8) as follows to remove the requirement for the FAA to assess insurer reputation:

“(8) Each policy must be placed with an insurer ~~**of recognized reputation and responsibility**~~ that is either:

- (i) licensed to do business in any State, territory, possession of the United States, or the District of Columbia; or
- (ii) **licensed in a foreign jurisdiction and** includes in each of its policies or insurance obtained under this part a contract clause in which the insurer agrees to submit to the jurisdiction of a court of competent jurisdiction within the United States and designates an authorized agent within the United States for service of legal process on the insurer.”

Recommendations for 14 CFR § 440.15 Demonstration of Compliance

- Amend 14 CFR § 440.15 (a) to reduce the submission deadline for other forms of financial responsibility from 60 days to 30 days. This will allow §§ (a)(2) and (a)(3) to be combined, which will simplify the regulations.

“(2) Evidence of insurance **or other form of financial responsibility** must be submitted at least 30 days before commencement of any licensed launch or permitted activity, and for licensed reentry no less than 30 days before commencement of launch activities involving the reentry licensee, unless the Administrator agrees to a different time frame in accordance with § 404.15;

~~“(3) Evidence of financial responsibility in a form other than insurance, as provided under § 440.9(f) must be submitted at least 60 days before commencement of a licensed or permitted activity, unless the Administrator agrees to a different time frame in accordance with § 404.15;”~~

- Amend 14 CFR § 440.15 (d):

Delete the requirement for a broker’s recommendation.

“(d) Each certificate of insurance required by paragraph (c)(1)(ii) of this section must be signed by the insurer issuing the policy ~~and accompanied by an opinion of the insurance broker that the insurance obtained by the licensee or permittee complies with all the requirements for insurance of this part and any applicable license or permit order.~~”

- Amend 14 CFR § 440.15 (e):

Add clarifying language

“(e) The licensee or permittee must maintain, and make available for inspection by the FAA upon **reasonable** request, all required policies of insurance and other documents necessary to demonstrate compliance with this part.”

Appendices

Appendix A – Working Group Focus Questions

GROUP 1 FOCUS QUESTIONS

MPL Threshold	Review the need to adjust the maximum probable loss risk thresholds (currently 1 in 10 million for third-party and 1 in 100 thousand for United States Government property).
Casualty Cost	Review the cost of a casualty (currently \$3 million).
Hazardous Area Visitors	Determine whether invited visitors inside hazardous areas should continue to be covered under third-party liability insurance or under some other financial responsibility arrangement.
Transient Property	Determine whether United States government transient property should continue to be included under Government property insurance even though it is not included in the maximum probable loss calculation. Should this practice be extended to non-federal launch/reentry sites? Should this practice be extended to third-party property at federal ranges and/or non-federal launch/reentry sites?
Financial Responsibility	Provide suggestions for what standards should apply for means of financial responsibility other than insurance.
Insurance Costs	How do you define reasonable costs of insurance available on the world market? Is there a need to define reasonable costs?
Insurance Terms & Conditions	The current requirements have several terms and conditions required in the insurance. Are these terms and conditions still reasonable? Should others be added?

GROUP 2 FOCUS QUESTIONS

Nuclear Power in Commercial Space Systems	Insurance policies typically do not include coverage for nuclear power sources in commercial space systems. What can the rule language include to address nuclear liability and insurance within the Financial Responsibility framework for launch? Note: There are three risk tiers described in NSPM-20, available at: https://trumpwhitehouse.archives.gov/presidential-actions/presidential-memorandum-launch-spacecraft-containing-space-nuclear-systems/ .
Waiver of Claims	Review whether the waiver of claims language defined by Congress may be executed legally and sufficiently in a more streamlined manner. Can the language be incorporated directly in contracts with all affected parties to include contractors, subcontractors, crew, space flight participants, customers, and any other parties as defined in the current regulations? Does the FAA need to continue to be a signatory or is authorization of the activity under license or permit sufficient?

Licensee v. Customer	Do the current regulations sufficiently address when a party may be acting both as licensee and customer? What about as space flight participant and customer? Are there any parties missing from the current flow down regime that should be contemplated?
Astronauts	Aside from defining these terms to exclude them from the current 440 regime, does additional wording need to be added to appropriately incorporate Government Astronauts and International Partner Astronauts?
Government Customers	Should the FAA continue to sign on behalf of Government Customers? Should the FAA continue to require third-party insurance for Government Customer and Government Personnel involved in launch/reentry services? Are there other ways to address unfunded mandates inherent in the current liability sharing regime defined by Congress?

Appendix B – Overview of MPL Method

The FAA provided the following high-level overview of its internal procedures for MPL calculations during a briefing to the SpARC in July 2023.

Overview of MPL Approach

- Account for all feasible launch accident scenarios, including vehicle trajectory and debris impact dispersions, and quantify the probability of each scenario
- Account for the locations and numbers of all people exposed to debris hazards (on rare occasions, toxics have contributed)
- Establish values of exposed structures and repair costs based on damage
- Use physics-based models to predict the severity of impacts of hazardous debris in terms of casualties (serious injuries or worse) and property damage
 - Separate vulnerability models for people in the open and in structures
 - FAA assigns \$3,000,000 per casualty
- Perform a Monte Carlo analysis to simulate a multitude of accident scenarios and compile casualty and structure damage results from each scenario
- Determine the level of loss for people and property at 1×10^{-5} for USG property and personnel and neighboring operations personnel, and 1×10^{-7} for non-Government third parties
- Establish a value of maximum probable loss - FAA issues separate MPL values for pre-flight and flight.

Federal Aviation Administration

AST Commercial Space Transportation

6

Third Parties

Category	Value
Neighboring Operations Personnel Casualties (Including Their Personnel Property)	@ 1E-5
Involved US Govt Personnel Casualties (Including Their Personal Property)	@ 1E-5
Third-Party Property, including Neighboring Operations Property & USG Property Off USG Range	@ 1E-7
Third-Party Casualties, including Uninvolved USG Personnel	@ 1E-7

This chart illustrates the contributions to third-party liability. However, they do not contribute to third-party liability in proportion to their magnitude. Instead, the risk profile determines where the accumulated contributions of various categories will ensure a likelihood that maximum probable event will not be exceed one in ten million opportunities or one in a hundred thousand opportunities, depending on the category.

Federal Aviation Administration

AST Commercial Space Transportation

5

The FAA also confirmed that there is no single tool that directly produces the actual MPL value. Instead, the MPL determination results from a combination of analyses using different methods appropriate to the scenario (e.g., downrange overflight, near-field property, near-field personnel, other on-facility personnel, and off-facility personnel and property). There are also differences between the US government and third-party determinations. The MPL is based on flight safety analysis and the computations for government and third-party determinations are mostly identical. The FAA often determines near-field asset risk from impact probability and structural data, which sometimes is the only important contributor to the MPL determination. For these determinations, any accepted debris tool (i.e., meets § 450.121(c) to the standard of § 450.101(g)) could be used). For situations where a higher fidelity MPL is needed, more specific computations of the outcome of each sampled failure scenario are necessary to create a risk profile.

Appendix C – SpARC Member Voting Responses and Ballots

The SpARC believes this report fulfills the tasks in the mission of the Charter. The recommendations contained in this report were robustly debated and the report was accepted by the full SpARC prior to submission to the FAA.

In support of a transparent SpARC process, members were offered the opportunity to include a (2 page) concurrence or non-concurrence on the final document. All submissions are included in this report.

The SpARC completed its deliberations and report drafting on February 8, 2024. Voting ballots were distributed to the 29 voting SpARC members on February 9, 2024. The tally is as follows:

26 – Concur as Written

1 – Concur with Comment

1 – Concur with Exception

1 – Abstain

0 – Non-Concur

Organization	Primary Representative	Alternate Representative	Voting Response
ABL Space Systems	Matthew Michaels		Concur as Written
Aerospace Industries Association	Mike French		Concur as Written
Air and Space Law at the University of Mississippi School of Law	Michelle L.D. Hanlon		Concur as Written
American Institute of Aeronautics and Astronautics	Ryan Cooperman		Concur as Written
Aon UK Limited	Mike Vinter		Concur as Written
Ascendant Space Flight	Lisa Loucks		Concur with Exception
Astra	Dr. Thomas M. Williams		Abstain
AXA XL Insurance Group	Chris Kunstadter		Concur as Written

Axiom Space	Jared Stout	Ramzi Masri- Elyafaoui	Concur as Written
Blue Origin	Maggie McNeece	Megan Mitchell	Concur as Written
Commercial Spaceflight Federation	Karina Drees		Concur as Written
Georgetown University Law Center	Caryn Schenewerk		Concur as Written
Ground Based Space Matters	Laura Montgomery		Concur as Written
Marsh USA, Inc.	Amy Avjean	Ray Duffy	Concur as Written
Northrop Grumman	Bill Olsen	Brian Stanford	Concur with Comment* <i>*SpARC member's comments were editorial in nature and were incorporated into the final report.</i>
Relativity Space	Joy Mosdell	Jackie Jester	Concur as Written
Rocket Lab	Michelle Loynes	Ben Lloyd	Concur as Written
Secure World Foundation	Ian Christensen		Concur as Written
Sierra Space	Tim Keating	Christopher Allison Danie Buckon Michelle Wilkerson	Concur as Written
Space Adventures	Tom Shelley		Concur as Written

Space Exploration Technologies Corp (SpaceX)	David Harris	Cameron Carter	Concur as Written
Space Florida	Dale Ketcham		Concur as Written
Spaceport America	Scott McLaughlin		Concur as Written
United Launch Alliance	Vernon Thorp	Jim Denapoli Mike Rudolph Michael J Viggiano Rachel L. Vaden	Concur as Written
United States Aircraft Insurance Group (USAIG)	John Brogan		Concur as Written
Varda Space Industries	Josh Martin		Concur as Written
Virgin Galactic	Ken Michaels	Tony James	Concur as Written
Virginia Commercial Space Flight Authority (VCSFA) & Mid-Atlantic Regional Spaceport (MARS)	Sean Mulligan		Concur as Written
Voyager Space	Meg Vernal	Rebecca Vanburken	Concur as Written

FAA Part 440 FINANCIAL RESPONSIBILITY

Aerospace Rulemaking Committee

Statement of Concurrence / Non-Concurrence

Voting Member Name	Matthew Michaels
Voting Member Organization	ABL Space Systems Company

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature: mt. michals Date: 2/16/2024

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document. Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____ Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	Michael French
Voting Member Organization	Aerospace Industries Association

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature: Michael J. French Date: 2/16/24

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document (if applicable). Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____ Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	Michelle Hanlon
Voting Member Organization	Air and Space Law at the University of Mississippi School of Law

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature:  Date: February 15, 2024

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document (if applicable). Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____ Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	Ryan Cooperman
Voting Member Organization	American Institute of Aeronautics and Astronautics (AIAA)

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature: Ryan Cooperman Date: 2.9.2024

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document. Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____ Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	Michael J. Vinter
Voting Member Organization	AON

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature: Michael J. Vinter Date: February 14, 2024

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document. Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____ Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY

Aerospace Rulemaking Committee

Statement of Concurrence / Non-Concurrence

Voting Member Name

Lisa Loucks

Voting Member Organization

Ascendant Spaceflight Services, LLC

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature: _____ Date: _____

2. Concur with the following exception(s):

Consistent with recommendations in GRC1, the recommended update to 440.3 definition for Maximum Probable Loss, subparagraph (2) Losses to Government property and Government personnel (page 45) should be modified to____ exclude government astronauts, government customers, and government employees or contractors involved in the licensed activity.

Fully explain the area(s) of exception in the text box above and include the specific line number from the document (if applicable). Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature:



Date: 2/15/2024____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____

Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY

Aerospace Rulemaking Committee Statement of Concurrence / Non-Concurrence

Voting Member Name	Thomas M. Williams
Voting Member Organization	Astra Space Operations LLC

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature: _____ Date: _____

2. Concur with the following exception(s):

Voting Member Signature: _____ Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

4. Abstain


Voting Member Signature:  _____ Date: 2-29-24

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	Chris Kunstadter
Voting Member Organization	AXA XL Insurance Group

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature:  Date: 13 Feb 2024

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document. Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____ Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	Jared Stout
Voting Member Organization	Axiom Space

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature: Jared Stout Date: 2/15/24

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document (if applicable). Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____ Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	Maggie McNeece
Voting Member Organization	Blue Origin

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature: _____/s/ Maggie McNeece_____ **Date:** _____02/16/2024_____

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document (if applicable). Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____ **Date:** _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ **Date:** _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	Karina Drees
Voting Member Organization	Commercial Spaceflight Federation

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature:  Date: 02/26/24

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document (if applicable). Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____ Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	Caryn Schenewerk
Voting Member Organization	Georgetown University Law Center

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature:  Date: Feb 15, 2024

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document (if applicable). Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____ Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	Laura Montgomery
Voting Member Organization	Ground Based Space Matters, LLC, Law Offices

As a voting member and full participant of the FAA Part 440 Financial Responsibility ARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature: /signed/ Laura Montgomery

Date: February 16, 2024

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document (if applicable). Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____

Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____

Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	Amy Avjean
Voting Member Organization	Marsh USA

As a voting member and full participant of the FAA Part 440 Financial Responsibility ARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature:  Date: 2/8/2024

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document. Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____ Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	Brian M. Stanford
Voting Member Organization	Northrop Grumman Corporation

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written (with accompanying feedback and suggestions)

Voting Member Signature: Brian Stanford Date: 16 February 2024

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document (if applicable). Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____ Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

16 February 2024

**SUBMITTED ELECTRONICALLY
WITH ACCOMPANYING CONCURRENCE**

Subject: Part 440 Financial Responsibility Aerospace Rulemaking Committee Final Report
Concurrence

On behalf of Northrop Grumman Corporation (Northrop), we appreciate the invitation and opportunity to participate as a voting member of the Part 440 Financial Responsibility Aerospace Rulemaking Committee (SpARC). As both a commercial launch and reentry operator/licensee, as well as a frequent customer of commercial launch services, Northrop is supportive of this initiative and the efforts of the SpARC to compile this Final Report. And we believe the legal framework concerning commercial space launch financial responsibility and allocation of risk should evolve to keep pace with the current state of industry. It is our hope that the contributions of the SpARC will help guide that necessary evolution.

Northrop concurs with the SpARC's Final Report and the recommendations contained therein, which should drive thoughtful re-examination of these principles and inform potential legislative and regulatory solutions. Northrop offers the following feedback and suggestions on two areas of the Final Report. It is our hope that such feedback will only serve to strengthen the efficacy of this work product.

- Page 31 (of the pdf) contains a sentence which reads: "Despite the statute, the burden of acceptance of risk is primarily shifted to and undertaken by the Government through required insurance or other demonstration of financial responsibility and exposure to liability." Northrop believes this sentence contains an error and that the words "the Government" should be replaced with "the licensee."
- Page 34 (of the pdf) contains a sentence which begins: "In the absence of any fulsome legal examination and conclusive determination..." Northrop believes this sentence is confusing as written and suggest that the sentence should be rewritten as two separate sentences as follows: "*In the absence of any fulsome legal examination and conclusive determinations as to whether: 1) the FAA has statutory authority to assume responsibility for claims brought by government employees and contractors involved in a launch; or 2) the FAA is prohibited by appropriations law from signing a reciprocal waiver and assumption of responsibility memorializing the same, these remain open questions subject to differing interpretations and conclusions sixteen years after promulgation of these rules. As such, the SpARC recommends that the FAA use this*

rulemaking as an opportunity to revisit these matters and bring its Part 440 regulations in line with its authority.”

Neither of these suggestions alter the substance of the recommendations contained within the SpARC’s Final Report.

Thank you for your consideration.

Sincerely,

Brian Stanford

Brian M. Stanford
Senior Corporate Counsel
Northrop Grumman Corporation

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	Joy Mosdell
Voting Member Organization	Relativity Space

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature:  Date: 15 Feb 2024

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document. Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____ Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	Benjamin Lloyd
Voting Member Organization	Rocket Lab

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written



Voting Member Signature:

Date: 2/16/24

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document (if applicable). Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____

Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____

Date: _____


Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	Ian Christensen
Voting Member Organization	Secure World Foundation

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature:  _____

Date: 2-15-24

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document. Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____

Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____

Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	Tim Keating
Voting Member Organization	Sierra Space Corporation

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature: Timothy John Keating Date: February 15th, 2024

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document (if applicable). Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____ Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ Date: _____

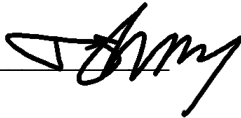
Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	Tom Shelley
Voting Member Organization	Space Adventures Inc.

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature:  Date: 2-14-24

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document. Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____ Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY

Aerospace Rulemaking Committee

Statement of Concurrence / Non-Concurrence

Voting Member Name	Dale Ketcham
Voting Member Organization	Space Florida

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature: _____



Date: 12Feb24

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document. Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____

Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____

Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	Melissa Force
Voting Member Organization	Spaceport America

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature: Melissa Force Date: 2-14-24

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document. Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____ Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ Date: _____

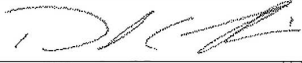
Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	David Harris
Voting Member Organization	SpaceX

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature:  Date: 2/14/2024

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document. Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____ Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY

Aerospace Rulemaking Committee

Statement of Concurrence / Non-Concurrence

Voting Member Name	Rachel Vaden
	United Launch Alliance

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature:  Date: 2/13/2024

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document. Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____ Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	JOHN BROGAN
Voting Member Organization	USAIG

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature:  Date: 2/15/24

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document (if applicable). Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____ Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	Josh Martin, VP for Government Affairs
Voting Member Organization	Varda Space Industries, Inc.

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature: Josh Martin Date: February 28, 2024

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document (if applicable). Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____ Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	Ken Michaels
Voting Member Organization	Virgin Galactic

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature:  Date: 2/14/24

2. Concur with the following exception(s):

None noted.

Fully explain the area(s) of exception in the text box above and include the specific line number from the document. Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____ Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ Date: _____

Letters of Dissent must be on company letterhead and may not exceed 2 pages in length.

FAA Part 440 FINANCIAL RESPONSIBILITY
Aerospace Rulemaking Committee
Statement of Concurrence / Non-Concurrence

Voting Member Name	Sean Mulligan
Voting Member Organization	Virginia Commercial Space Flight Authority & Mid-Atlantic Regional Spaceport (MARS)

As a voting member and full participant of the FAA Part 440 Financial Responsibility SPARC, I hereby acknowledge that I have reviewed the Final Report and recommendations and make the following statement:

1. Concur with the Final Report as written

Voting Member Signature: _____



Date: _____

2/15/2024

2. Concur with the following exception(s):

Fully explain the area(s) of exception in the text box above and include the specific line number from the document (if applicable). Member may submit a separate paper on company letterhead if additional space is required. Separate papers may not exceed 2 pages in length.

Voting Member Signature: _____ Date: _____

3. Non-Concur. Letter of Dissent must be provided.

Voting Member Signature: _____ Date: _____

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