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ESSAYS

TO BOLDLY GO WHERE ONLY A SELECT FEW HAVE GONE BEFORE: EXPLORING THE COMMERCIAL SPACE LAUNCH ACT AND THE LEGAL RISKS ASSOCIATED WITH REACHING FOR THE STARS

*Brent M. Timberlake **

“Unless we turn human growth and energy toward the challenges and promises of space, our only other choice may be the awful risk, currently demonstrable, of stumbling into a cycle of fratricide and regression which could end all chances of our evolving further or of even surviving.”¹

I. INTRODUCTION

It was January 28, 1986; virtually every student in every classroom was glued to the television to watch Christa McAuliffe become the first teacher in space. For the first time since the Apollo missions, the entire world seemed once again enamored with the idea of space travel. Just over a minute after launch, the excitement turned to disbelief when the space shuttle Challenger disintegrated and returned to Earth.² President Reagan was right—we have never forgotten them “nor the last time we saw them . . . as

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1. Gene Roddenberry, *Hailing Frequencies Open!*, 1 THE PLANETARY REPORT 3, 3 (Apr./ May 1981).

2. BBC, *1986: Seven Dead in Space Shuttle Disaster*, http://news.bbc.co.uk/onthisday/hi/dates/stories/january/28/newsid_2506000/2506161.stm (last visited Oct. 11, 2009).

they prepared for their journey and waved goodbye and slipped the surly bonds of earth to touch the face of God.”³ The loss of Challenger and her crew tarnished the renewed excitement in America’s space program and signaled an era of reduced notoriety for space exploration.⁴

The Russian space program’s decision to offer trips into space for private individuals in 2001 rekindled the childhood hopes and dreams of many to travel into space.⁵ Unfortunately, only the wealthiest patrons of Russia’s space exploration can afford the millions of dollars it costs to take a ride into space.⁶

Recently, however, Virgin announced a plan that would lower the cost and give more individuals the opportunity to travel into space. Specifically, Virgin plans to operate a wholly private space program in which passengers will be carried 50,000 feet into the atmosphere by a supersonic jet and then launched into space for a several minute tour.⁷ Because these flights are airplane-based, the cost is substantially less at approximately \$200,000 per person per flight.⁸ Since Virgin’s announcement, other private companies throughout the world have also begun to focus on providing cheaper space flights to private persons.⁹

In addition to conveyance of passengers, the use of private commercial organizations to launch satellites and other cargo into space opens an entirely new sector of commerce—one without limitations. The expanding electronic age makes the need for new

3. *Id.*

4. *See id.*

5. *See* BBC, 2001: First Space Tourist Blasts Off, http://news.bbc.co.uk/onthisday/hi/dates/stories/april/28/newsid_2501000/2501015.stm (last visited Oct. 11, 2009).

6. Dennis Tito, a billionaire businessman, paid \$20 million for his trip to outer space. *See id.*

7. *See* Virgin Galactic: Overview, <http://virgingalactic.com/htmlsite/overview.php> (last visited Oct. 11, 2009).

8. *See* Virgin Galactic: Book, <http://virgingalactic.com/htmlsite/book.php> (last visited Oct. 11, 2009).

9. *See, e.g.*, Press Release, Alliant Techsystems, ATK Completes Successful Pathfinder for Its New Launch Vehicle (Oct. 10, 2006), <http://atk.mediaroom.com/index.php?s=118&item=626> (discussing the planned launch from Virginia’s Mid-Atlantic Regional Spaceport on Wallops Island); Blue Origin: Careers, <http://blueorigin.com/index.html> (last visited Oct. 11, 2009) (launch facility in Texas desert); Justin Martin, *Indie Space Ventures Blast Off*, CNN MONEY, Dec. 4, 2008, http://money.cnn.com/2008/12/02/smallbusiness/space_freight.fsb/index.htm (discussing UP Aerospace’s agreement to launch from New Mexico’s future spaceport); PlanetSpace: About PlanetSpace, <http://www.planetspace.org/lo/about.htm> (last visited Oct. 11, 2009) (goal of commercialization of space).

and more versatile satellites of even greater importance to the world economy. Of course, the Challenger disaster has left many companies and organizations apprehensive about the risks and liabilities associated with space flight. Thus, not surprisingly, the United States has lagged behind other countries in commercial space launches over the past five years.¹⁰

II. COMMERCIAL SPACE LAUNCHES

On July 28, 2008, Virgin Galactic and a vehicle development company unveiled the carrier aircraft that will launch the sub-orbital spacecraft to the 49,000 foot ignition altitude.¹¹ Another company, Space Exploration Technologies, Inc., successfully launched the Falcon 1 small launch vehicle on September 28, 2008, following three failed attempts.¹² Alliant Techsystems, on the other hand, sustained a brief setback when its launch vehicle exploded twenty-seven seconds after lifting off.¹³

The United States does not have a corner on the commercial space launch market, but ranks third behind Russia and Europe.¹⁴ Revenue for commercial space flights in Russia and Europe over the last five years was just under \$500 million each, whereas revenue for the same period in the United States was just over \$125 million.¹⁵ While the United States was late arriving on the commercial space flight scene, it is the nation primarily responsible for manufacturing, developing, and exporting aeronautics technology around the world.¹⁶ In short, the number of

10. See FED. AVIATION ADMIN., QUARTERLY LAUNCH REPORT: 4TH QUARTER 2008, at 9 (2008), available at http://www.faa.gov/about/office_org/headquarters_offices/ast/media/4thQtrReport.pdf.

11. *Id.* at 2.

12. *Id.*

13. *Id.* at 3.

14. *Id.* at 9.

15. *Id.* In the past five years, there have been twelve commercial launches in Russia, six in Europe, and only three in the United States. *Id.*

16. See CARL E. BEHRENS, CONG. RESEARCH SERV., SPACE LAUNCH VEHICLES: GOVERNMENT ACTIVITIES, COMMERCIAL COMPETITION, AND SATELLITE EXPORTS, H.R. DOC. NO. 1B93062, at 9 (2006), available at <http://www.fas.org/sgp/crs/space/IB93062.pdf>. "The International Traffic in Arms Regulations . . . process has been developed under the jurisdiction of the Department of State . . . and is administered by the Directorate of Defense Trade Controls . . ." DEP'T OF COMMERCE, OFFICE OF SPACE COMMERCIALIZATION & FED. AVIATION ADMIN., OFFICE OF COMMERCIAL SPACE TRANSP., INTRODUCTION TO U.S. EXPORT CONTROLS FOR THE COMMERCIAL SPACE INDUSTRY 3 (Oct. 2008), available at http://www.faa.gov/about/office_org/headquarters_offices/ast/ (follow "Introduction to U.S. Ex-

launches and revenue generated by American companies engaged in commercial space travel is likely to grow exponentially over the next ten years. Competition from other countries, however, will almost certainly grow as well.

In an effort to encourage growth of the commercial space industry in the United States, Congress enacted and recently amended the Commercial Space Launch Act (“CSLA”), whereby commercial space flights are simultaneously encouraged and regulated by the Federal Aviation Administration (“FAA”).¹⁷ Two states—Virginia and Florida—have also sought to encourage commercial space development by providing income tax exemptions to companies engaged in commercial space flights¹⁸ and immunity for the carriage of passengers into space.¹⁹ All of the laws and regulations surrounding commercial space flights in the United States, however, exist within the framework created by international treaties governing space exploration and travel.

III. THE BACKGROUND AND RATIONALES UNDERLYING THE CSLA

Two international treaties primarily govern space exploration and development—the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (“Exploration and Use Treaty”)²⁰ and the Convention on International Liability for Damage Caused by Space Objects (“Liability for Damage Treaty”).²¹

The governing principle for all space exploration is that “[t]he exploration and use of outer space . . . shall be carried out for the

port Controls for the Commercial Space Industry” hyperlink). The ITAR regulations “support the control of items, information, or activities that could be used for threatening foreign military purposes, be they actual products (“defense articles”), or technical data and support (“defense services”).” *Id.*

17. Commercial Space Launch Amendments Act of 2004, Pub. L. No. 108-492, 118 Stat. 3974 (codified as amended at 49 U.S.C. § 70101 (2006)) [hereinafter Space Launch Act].

18. FLA. STAT. ANN. § 288.1045 (West Cum. Supp. 2009); VA. CODE ANN. § 58.1-609.3(13) (Repl. Vol. 2009).

19. FLA. STAT. ANN. § 331.501 (West Cum. Supp. 2009); VA. CODE ANN. §§ 8.01-227.8 to 8.01-227.10 (Repl. Vol. 2007).

20. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter Exploration and Use Treaty].

21. Convention on International Liability for Damage Caused by Space Objects, Mar. 29, 1972, 24 U.S.T. 2389, 961 U.N.T.S. 187 [hereinafter Liability for Damage Treaty].

benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind.”²² Indeed, by international agreement, “[o]uter space . . . is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.”²³ Astronauts are to be treated as the “envoys of mankind” and countries are required to “render to them all possible assistance in the event of [an] accident . . . or emergency. . . .”²⁴

Because space exploration and travel must be done for the benefit of all mankind, each signatory country to the Exploration and Use Treaty bears “international responsibility for national activities in outer space . . . *whether such activities are carried on by governmental agencies or by non-governmental entities. . . .*”²⁵ Signatory countries are also responsible for ensuring that “national activities are carried out in conformity with the provisions” of international law regarding space travel.²⁶ In order to carry out this mandate, “[t]he activities of non-governmental entities in outer space . . . shall require authorization and continuing supervision” by the country with jurisdiction and authority over such activity.²⁷

Signatory countries are “internationally liable for damage to another [signatory country] *or to its natural or juridical persons* by such object or its component parts on the Earth, in air space or in outer space,” whether such activities are carried out for a public or private purpose.²⁸

The liability scheme imposed upon space-faring countries is an interesting mix between strict liability and negligence. On the one hand, “[a] launching [country] shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the earth or to aircraft in flight.”²⁹ On the other hand

[i]n the event of damage being caused elsewhere than on the surface of the earth to a space object of one launching [country] or to persons or property on board such a space object by a space object of another

22. Exploration and Use Treaty, *supra* note 20, at art. I.

23. *Id.* at art. II.

24. *Id.* at art. V.

25. *Id.* at art. VI (emphasis added).

26. *Id.*

27. *Id.*

28. *Id.* at art. VII (emphasis added).

29. Liability for Damage Treaty, *supra* note 21, at art. II.

launching [country], the latter shall be liable only if the damage is due to its fault or the fault of persons for whom it is responsible.³⁰

When the space objects of two or more countries are involved in an accident or damage citizens or property of a third country, the two launching countries are held jointly and severally liable for the damage sustained by the third.³¹ The liability of those countries, however, is apportioned in accordance with the degree to which each country was at fault.³² If the extent of fault of either country cannot be established, liability is apportioned equally between them.³³ Despite the apportionment of fault, the injured country may "seek the entire compensation due . . . from any or all of the launching [countries]"³⁴

As a general matter, "[w]henver two or more [countries] jointly launch a space object, they shall be jointly and severally liable for any damage caused."³⁵ Countries that have paid damages as a result of a launch are granted "the right to present a claim for indemnification to other participants in the joint launching."³⁶ Interestingly, "[t]he participants in a joint launching may conclude agreements regarding the apportioning among themselves of the financial obligation in respect of which they are jointly and severally liable," but cannot utilize such agreements to prejudice the rights of the injured country or its citizens.³⁷

The Liability for Damage Treaty does "not apply to damage caused by a space object of a launching [country] to: (a) [n]ationals of that launching [country]; [or] (b) [f]oreign nationals during such time as they are participating" in a launch, are close to a launch, or are in the recovery area of a launch.³⁸ In other words, determining liability for Americans injured as a result of an American-based launch, or for foreign persons who were voluntarily participating in that launch, would be a matter of American law—the Liability for Damage Treaty would not be implicated.

30. *Id.* at art. III.

31. *Id.* at art. IV(1).

32. *Id.* at art. IV(2).

33. *Id.*

34. *Id.*

35. *Id.* at art. V(1).

36. *Id.* at art. V(2).

37. *Id.*

38. *Id.* at art. VII.

The statute of limitations on launch-related claims is “one year following the date of the occurrence of the damage or the identification of the launching [country] which is liable.”³⁹ Where a country is not aware of the damage, “it may present a claim within one year following the date on which it learned” of the damage, but “in no event [longer than] one year following the date on which the [country] could reasonably be expected to have learned of the facts through the exercise of due diligence.”⁴⁰ The one-year limitations period applies “even if the full extent of the damage may not be known” by the injured country.⁴¹ Nevertheless, “the claimant [country] shall be entitled to revise the claim and submit additional documentation after the expiration of such time-limits until one year after the full extent of the damage is known.”⁴²

At first blush, it might seem as if collision of objects in space or injury to persons or property on the ground is an infrequent occurrence. On February 10, 2009, however, “an Iridium commercial communications satellite and the defunct Russian military satellite Kosmos 2251 collided in low Earth orbit”⁴³ The collision, which took place over Siberia, created a large dust cloud and was monitored to ensure that other objects in orbit—including the International Space Station—were not in danger.⁴⁴ As more and more companies and nations engage in space exploration, there will undoubtedly be more and more collisions and accidents in space.

Given the international obligations imposed upon the United States government, Congress passed the CSLA to promote private space flight while simultaneously seeking to minimize the risk to the public and the liability of the federal government generally.⁴⁵ The FAA, more specifically, the Office of Commercial

39. *Id.* at art. X(1).

40. *Id.* at art. X(2). For general tort practitioners, this is essentially an application of the “discovery rule” for purpose of accrual of the statute of limitations. *See* RESTATEMENT (SECOND) OF TORTS § 899 cmt. e (1979).

41. Liability for Damage Treaty, *supra* note 21, at art. X(3).

42. *Id.*

43. FED. AVIATION ADMIN., QUARTERLY LAUNCH REPORT: 2ND QUARTER 2009, at 3 (2009), available at http://www.faa.gov/about/office_org/headquarters_offices/ast/media/2Q2009%20Quarterly%20Report.pdf.

44. *Id.*

45. *See* 49 U.S.C. § 70101(a)–(b) (2006).

Space Transportation, is tasked with overseeing the implementation of the CSLA.⁴⁶

IV. THE GENERAL REGULATORY FRAMEWORK OF THE CSLA

The CSLA governs the sites from which commercial rockets are launched into space, the launch of reusable launch vehicles (“RLVs”), the launch of non-reusable vehicles, the reentry of reentry vehicles other than RLVs, and sites at which a reentry is to occur.⁴⁷

The CSLA regulates two types of space flights—those in which RLVs are used and those in which expendable vehicles are used.⁴⁸ The CSLA prohibits the use of either type of vehicle unless a license is obtained from the FAA.⁴⁹ Operators of RLVs can obtain either a “mission-specific” license, which approves a certain number of specifically delineated missions from a specific launch site, or a two-year “operator license,” which permits the launching and reentry of a specific type of RLV at locations and within parameters set forth in the license itself.⁵⁰ Similarly, operators of expendable rockets can obtain one of two types of licenses: a “launch-specific” license, which explicitly approves a certain number of specifically delineated missions from a launch site, or a five-year “launch operator” license, which permits an operator to launch rockets of the same type from a single launch site within a given set of parameters set forth in the license.⁵¹

A. *License and Licensing Requirements*

To obtain a license of either type, an applicant must consult with the FAA prior to submitting an application⁵² and must comp-

46. See Fed. Aviation Admin., About the Office, http://www.faa.gov/about/office_org/headquarters_offices/ast/about/ (last visited Oct. 11, 2009).

47. 14 C.F.R. § 413.1 (2009).

48. Compare 14 C.F.R. § 415 (2009) (setting forth licensing requirements for launch vehicles other than RLVs), with 14 C.F.R. § 431 (2009) (setting forth licensing requirements for RLVs).

49. See 49 U.S.C. § 70104(a) (2006); see also 14 C.F.R. §§ 415.31, 431.3 (2009).

50. 14 C.F.R. § 431.3(a)–(b) (2009).

51. *Id.* § 415.3.

52. *Id.* § 413.5. Consultation must also occur before any safety approval application is made. *Id.* § 414.9.

ly with the FAA's general licensing regulations.⁵³ In addition, an applicant must obtain safety approvals from the FAA for the following: "(1) [l]aunch vehicle, reentry vehicle, safety system, process, service, or any identified component thereof; [and] (2) [q]ualified and trained personnel, performing a process or function related to licensed launch activities or vehicles."⁵⁴ A "safety approval" is a determination by the FAA that the reviewed items—when used in accordance with design specifications or within defined parameters—"will not jeopardize public health and safety or safety of property."⁵⁵ Safety approvals can be obtained by manufacturers or designers of launch vehicles or a component thereof, personnel who perform critical safety functions, or designers and developers of safety systems or processes.⁵⁶ The FAA mandates, however, that "[a] safety approval applicant must have sufficient knowledge and expertise to show that the design and operation of the safety element for which safety approval is sought qualify for a safety approval."⁵⁷

An application for safety approval must include the following technical information:

- (i) Information and analyses . . . demonstrating safe performance of the safety element for which the safety approval is sought.
- (ii) Engineering design and analyses that show the adequacy of the proposed safety element for its intended use, such that the use in a licensed launch or reentry will not jeopardize public health or safety or the safety of property.
- (iii) Relevant manufacturing processes.
- (iv) Test and evaluation procedures.
- (v) Test results.
- (vi) Maintenance procedures.
- (vii) Personnel qualifications and training procedures.⁵⁸

Understanding that the technical requirements might involve the submission of trade secrets or other confidential information, the FAA maintains the confidentiality of any such information, provided that that the submissions are each specifically marked as confidential.⁵⁹

In determining whether to issue a safety approval, the FAA will look to the following hierarchy of authority: "(1) FAA or other

53. *See id.* § 413.1–413.23.

54. *Id.* § 414.3

55. *Id.*

56. *Id.* § 414.7(b).

57. *Id.* § 414.7(c).

58. *Id.* § 414.11(c)(3)(i)–(vii).

59. *Id.* § 414.13(a)(2), (b).

appropriate Federal regulations[;] (2) Government-developed or adopted standards[;] (3) Industry consensus performance-based criteria or standards[; or] (4) Applicant-developed criteria.”⁶⁰ When an applicant submits its own criteria, it must also submit information that would enable the FAA to fully evaluate the merits and viability of the safety design.⁶¹ Specifically, a company seeking to use its own criteria must submit for dissemination to the public as part of the approval process the following information: “(i) Design and minimum performance; (ii) Quality assurance system requirements; (iii) Production acceptance test specifications; and (iv) Continued operational safety monitoring system characteristics.”⁶² If approved, the safety approval is valid for five years, and can be used in support of applications for launch licenses.⁶³

As discussed previously, licenses can be obtained for either RLVs or expendable vehicles.⁶⁴ No license can be granted unless all policy⁶⁵ and safety approvals have been obtained from the FAA.⁶⁶ In addition, the FAA reviews the application to determine whether the applicant is capable of launching the vehicle—and returning the vehicle to the earth in the case of RLVs—“without jeopardizing public health and safety and safety of property.”⁶⁷

It would not be possible to recount the exact scientific formulae or criteria used by the FAA to make safety determinations for license applicants in this article because they are quite involved

60. *Id.* § 414.19(a)(1)–(4).

61. *Id.* § 414.19(a)(4).

62. *Id.*

63. *Id.* § 414.21(d). Even after a safety approval is granted, the applicant is under a continued obligation to maintain the accuracy of the information in the original application and to supplement the application with new information as it becomes available. *Id.* § 414.23. In addition, safety approvals can be renewed within ninety days of their expiration, provided that the renewal application meets all of the requirements for obtaining approval of an original application. *Id.* § 414.27. Safety approvals can only be transferred to other entities with FAA approval. *Id.* § 414.29(a).

64. *See id.* §§ 413.1–431.93 (RLVs); *id.* §§ 415.1–415.203 (expendable vehicles).

65. *See id.* § 415.23(a) (expendable vehicles); *id.* § 431.23(a) (RLVs). A policy review is conducted for any mission license or nonexpendable vehicle application to determine whether the proposed activity presents any issues that would adversely affect the United States’ national security, foreign policy interests, or would jeopardize public health and safety. *Id.* § 415.23(a) (expendable vehicles); *id.* § 431.23(a) (RLVs). Policy reviews are performed in conjunction with other agencies of the federal government. *See id.* § 415.23(b) (expendable vehicles); *id.* § 431.23(b) (RLVs).

66. *Id.* § 415.5 (expendable vehicles); *id.* § 431.5 (RLVs).

67. *Id.* § 415.31(a) (expendable vehicles); *id.* § 431.31 (RLVs).

and complex. Generally speaking, however, the FAA looks at the specific launch characteristics, including the type of launch, population centers, and other data to determine whether the proposed launch represents an “acceptable risk.”⁶⁸ Further, launch operators are required to demonstrate that they have the following mechanisms and procedures in place: (1) mission readiness procedures,⁶⁹ (2) communications plans,⁷⁰ (3) “[r]eusable launch vehicle mission operational requirements and restrictions,”⁷¹ (4) accident or mishap investigation plans,⁷² and (5) other varying requirements.⁷³

B. *Experimental Permits*

It may be difficult for launch operators to meet all of the safety approval and policy approval processes without first conducting experiments on launch vehicles. As a result, the CSLA provides for the issuance of experimental permits.⁷⁴ Experimental permits are available for an unlimited number of experimental flights using a particular design for a reusable suborbital rocket.⁷⁵ Further, experimental permits can only be obtained for research and development, showing compliance with FAA requirements as part of a license application, or crew training.⁷⁶ Although a permit holder can launch people into space, the permit holder cannot accept compensation for that activity while operating under an experimental permit⁷⁷ and is not “relieve[d] . . . of its obligation to comply with any requirement of law that applies to its activities.”⁷⁸ Finally, permits are valid for only one year and can be renewed, but cannot be transferred to any other party.⁷⁹

68. *Id.* § 415.35 (expendable vehicles); *id.* § 431.35 (RLVs).

69. *Id.* § 415.37(a) (expendable vehicles); *id.* § 431.37 (RLVs).

70. *Id.* § 415.37(b) (expendable vehicles); *id.* § 431.41 (RLVs).

71. *Id.* § 431.43 (RLVs).

72. *Id.* § 415.41 (expendable vehicles); *id.* § 431.45 (RLVs).

73. *See, e.g., id.* § 431.39(a) (RLVs).

74. *See* 49 U.S.C. § 70105a (2006).

75. *Id.* § 70105a(e)(1).

76. *Id.* § 70105a(d).

77. *Id.* § 70105a(h).

78. 14 C.F.R. § 437.17 (2009).

79. *Id.* § 437.11; *id.* § 437.15.

C. *Government Inspections and Financial Responsibility Requirements*

All permit or license applicants must submit to government inspections, which include inspections of their contractors' and sub-contractors' facilities, as a condition of licensing or permitting.⁸⁰ These inspections can be conducted at the launch or reentry site, at construction facilities, at manufacturing plants, or at any location that is associated with the launch or the design or manufacturing of components for use in the launch or reentry.⁸¹ Inspections are conducted at times and locations selected by the FAA.⁸²

As part of the safety review and inspection process, described *supra* Part IV(A)–(B), the FAA makes a determination of the maximum probable loss associated with the launch activity.⁸³ The maximum probable loss⁸⁴ becomes an integral part of the CSLA's liability-shifting provisions and the requirement that applicants demonstrate adequate financial responsibility to cover the maximum probable loss.⁸⁵

V. THE LIABILITY-SHIFTING PROVISIONS OF THE CSLA

The CSLA requires all license or permit applicants to demonstrate financial responsibility—whether through liability insurance or some independent means of guaranteeing payment in the event of loss—to compensate “(A) a third party for death, bodily injury, or property damage or loss resulting from an activity carried out under the license; and (B) the United States Government against a person for damage or loss to Government property resulting from an activity carried out under the license.”⁸⁶

80. See 49 U.S.C. § 70106(a) (2006).

81. *Id.*

82. *Id.*

83. *Id.*

84. The maximum probable loss determination is discussed in more detail *infra* Part V.

85. See 49 U.S.C. § 70112 (2006).

86. *Id.* § 70112(a)(A)–(B). The FAA is required, as part of any application process, to assess the maximum probable loss—“the greatest dollar amount of loss for bodily injury or property damage that is reasonably expected to result from a licensed or permitted activity.” 14 C.F.R. § 440.3 (2009). The FAA determines the minimum amount of loss through a thorough review of all of the scientific and technical data regarding the spaceflights, and utilizes that data to come up with the maximum probable loss figure. See *id.* § 440.7. For a

A “third party” does not include any of the following entities and personnel while involved in launch or reentry activities: the United States or any of its contractors or subcontractors; licensees or permittees or any of their contractors or subcontractors; customers of licensees or permittees, or any of the customer’s contractors or subcontractors; or space flight participants.⁸⁷ The terms “contractors” and “subcontractors” are broadly defined as “those entities that are involved at any level, directly or indirectly, in licensed or permitted activities, and includes suppliers of property and services, and the component manufacturers of a launch vehicle, reentry vehicle, or payload.”⁸⁸

As part of every license or permit application, the FAA makes a determination of the maximum probable loss, which constitutes the basis for the financial requirements set forth in the licensing and permitting regulations.⁸⁹ In making its determination, the FAA requires applicants to submit a plethora of information regarding the mission, including persons involved, governmental personnel involved, and payload so that it can assess the risks associated with the proposed activity.⁹⁰ After receiving this information, the FAA “will consult with Federal agencies that are involved in, or whose personnel or property are exposed to risk of damage or loss as a result of, a licensed or permitted activity” in order to determine the maximum probable loss.⁹¹ The determination must be made “no later than ninety days after a licensee or permittee has requested a determination and submitted all information required by the FAA to make the determination.”⁹² Applicants are required to update information regarding the proposed activity as it changes, and the FAA can amend its maximum probable loss determination as warranted by the supplemental information received.⁹³

discussion of all of the data considered by the FAA, see Appendix A to Part 440.

87. 14 C.F.R. § 440.3 (2009). Coincidentally, government employees *are* included in the definition of a third party, and thus any insurance contract must cover injuries or damage sustained by government employees. See *id.* §§ 440.3, 440.5.

88. *Id.* § 440.3.

89. *Id.* § 440.7(a).

90. See *id.* § 440.7; *id.* § 400 app. A.

91. *Id.* § 440.7(b).

92. *Id.*

93. *Id.* § 440.7(c)–(d).

A licensee or permittee is required to obtain sufficient insurance to cover the maximum probable loss,⁹⁴ but in no event is the insurance required to be for more than \$500 million to cover claims by third parties, and \$100 million to cover property damage claims by the United States.⁹⁵ In addition, the insurance policy must provide coverage for “(A) the Government[;] (B) executive agencies and personnel, contractors, and subcontractors of the Government[;] (C) contractors, subcontractors, and customers of the licensee or transferee[; and] (D) contractors and subcontractors of the customer”⁹⁶ “to the extent of their potential liability for involvement in launch services.”⁹⁷

In addition, the licensee or permittee is required to “make a reciprocal waiver of claims with its contractors, subcontractors, and customers, and contractors and subcontractors of the customers, involved in launch services or reentry services.”⁹⁸ The reciprocal waivers require all of the parties to the waiver agreement “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 resulting from an activity carried out under the applicable license [or permit].”⁹⁹ The United States government and its agencies—but not its employees—agreed to make a similar waiver with the licensee or permittee and all contractors, subcontractors, and customers of the licensee or permittee.¹⁰⁰

Where third-party claims against the licensee or its contractors or subcontractors—or the employees of any of them—arising out of a licensed activity exceeds the maximum probable loss or \$500 million, whichever is less, the United States will pay “successful covered claims (including reasonable expenses of litigation or set-

94. *Id.* § 440.9. The insurance policy must comply with certain conditions. *Id.* § 440.13. An applicant can also demonstrate financial responsibility through means other than insurance, but the regulations are silent as to what would constitute a sufficient demonstration of “financial responsibility” to comply with the CSLA. *See id.*

95. 49 U.S.C. § 70112(a)(3)(A) (2006). In the event the maximum insurance available in the world market is less than \$500 million or \$100 million, licensees and permittees are only obligated to obtain the maximum insurance available on the world market. *Id.* § 70112(a)(3)(B).

96. *Id.* § 70112(a)(4).

97. *Id.*

98. *Id.* § 70112(b)(1).

99. *Id.* The regulations also require that the waiver contain an indemnification clause and a “hold harmless” provision for employee claims. *See* 14 C.F.R. § 440.17(b) (2009).

100. 49 U.S.C. § 70112(b)(2) (2006); *see also* 14 C.F.R. § 440.3 (2009); *supra* text accompanying note 80.

tlement)” up to \$1.5 billion but only “to the extent provided in an appropriation [bill].”¹⁰¹

In other words, payment by the United States is conditioned upon congressional earmarking of funds to cover the payment, notice of the claim, and numerous other requirements.¹⁰² Once an amount for a licensed activity exceeds \$1.5 billion, however, the licensee is responsible for payment of the overage.¹⁰³

Interestingly, the CSLA and federal regulations draw a distinction between a licensee and a permittee regarding whether the licensee or permittee remains liable for amounts exceeding the coverage of the federally mandated insurance. Put simply, the agreement of the United States to accept liability for successful claims above the limits of any federally mandated insurance and below \$1.5 billion, applies “to a license issued or transferred . . . for which the Secretary [of Transportation] receives a complete and valid application not later than December 31, 2009 . . . [but] does not apply to permits.”¹⁰⁴

Accordingly, companies involved in private space flights undertaken pursuant to experimental permits will be protected against claims by third parties for personal injury or property damage and by the United States for property damage, but only to the extent of insurance required by the FAA. Where a claim exceeds that amount, however, the permitted company and its contractors and subcontractors must look to their own resources to satisfy any claim or judgment. The reciprocal waivers and releases required by the CSLA still provide protection from claims by those persons covered by the releases—i.e., everyone but third parties and employees of the United States government—even for amounts exceeding \$1.5 billion.

VI. THE WAIVER PROVISIONS OF THE CSLA

Neither the CSLA nor the regulations promulgated thereunder require space flight participants to execute waivers in favor of the

101. 14 C.F.R. § 440.19(a)(1)–(2) (2009); *see also* 49 U.S.C. § 70113(a)(2) (2006) (stating that willful misconduct by the licensee is not covered).

102. 14 C.F.R. § 440.19(e) (2009).

103. *Id.* § 440.5(c). As previously discussed, this is because employees of the United States government are treated as third parties under the CSLA. *See id.* § 440.3.

104. 49 U.S.C. § 70113(f) (2006).

licensee or permittee or its contractors and subcontractors.¹⁰⁵ Space flight participants are, however, required to execute a valid and mutual waiver with the United States government.¹⁰⁶ Licensees and permittees are required to provide disclosures regarding the safety history and risks associated with space travel to participants,¹⁰⁷ and they must receive training on safety issues, including how to respond to emergency situations while in flight.¹⁰⁸

Because the CSLA does not require space flight participants to waive liability for any entity other than the United States government, companies participating in manned space flights will still need to look to other means of limiting claims by space flight participants.¹⁰⁹

VII. WHAT WAIVERS WILL WORK?

A. *Viability of Releases Generally*

The viability of a release for personal injuries sustained by a surviving space flight participant will be measured according to the applicable state's public policies regarding releases of future negligence, as well as the degree to which wrongful death actions are believed to be derivative of the decedent's claims. Some states permit such releases, while others do not.¹¹⁰ Most of the decisions

105. See 14 C.F.R. §§ 460.41–460.53 (2009).

106. *Id.* § 460.49.

107. *Id.* § 460.45.

108. *Id.* § 460.51.

109. This is undoubtedly why other states have passed legislation which seeks to limit the liability of licensees/permittees and their contractors and subcontractors to space flight participants. See, e.g., VA. CODE ANN. §§ 8.01-227.8 to 8.01-227.10 (Repl. Vol. 2007).

110. Compare *Gambino v. Music Television, Inc.*, 932 F. Supp. 1399, 1401 (M.D. Fla. 1996) (finding that a release agreement for an obstacle course that required the plaintiff to assume all risks, including falls, was valid and granted summary judgment for the defendant), *Wheelock v. Sport Kites, Inc.*, 839 F. Supp. 730, 735–36, 739 (D. Haw. 1993) (upholding a release signed by the plaintiff who was killed as a result of canopy line breaking while paragliding, finding that that release was unambiguous and made clear that the plaintiff assumed all risks of paragliding, including death), *Allan v. Snow Summit, Inc.*, 59 Cal. Rptr. 2d 813, 826 (Ct. App. 1996) (upholding summary judgment in favor of a ski company where the plaintiff signed a release acknowledging the dangers associated with skiing prior to going on the slopes), *Madison v. Superior Court*, 250 Cal. Rptr. 299, 302, 304, 307 (Ct. App. 1988) (upholding a release executed by the deceased plaintiff who was left alone by his scuba-diving instructor, finding that the release stated in bold type that it released the defendant from “liability for personal injury, property damage or wrongful death caused by negligence” making clear that the plaintiff assumed the risks of the dive), *Powers v. Superior Court*, 242 Cal. Rptr. 55, 57 (Ct. App. 1987) (upholding two separate

striking down releases utilize the unfairness, unequal bargaining position, or general ambiguity of the release as a basis for finding the release unenforceable.¹¹¹

Notwithstanding the public policies of states regarding waivers and releases, however, the federal government has made a policy determination that such releases are proper and enforceable for all space-flight participants. Specifically, the United States requires that every space-flight participant execute a release excusing it from liability, and further mandates the use of a specific form included in the Code of Federal Regulations.¹¹² This form re-

releases signed by the plaintiff as part of his rental of an ultralight aircraft, and concluding that the releases were “clearly written, easily legible, and specifically phrased”), *Heil Valley Ranch, Inc. v. Simkin*, 784 P.2d 781, 785 (Colo. 1989) (upholding a release where the plaintiff was injured as a result of a horse falling on her, finding that the agreement was written in clear and unambiguous terms and the plaintiff was aware of the risks), *Jones v. Dressel*, 582 P.2d 1057, 1058–59 (Colo. App. 1978) (upholding a release of a parachute jumper for injuries incurred during an airplane crash, finding that there was no real unequal bargaining power and plaintiff could have sought the services elsewhere), *Deboer v. Fla. Offroaders Driver’s Ass’n*, 622 So. 2d 1134, 1135–37 (Fla. Dist. Ct. App. 1993) (upholding a release signed by a racing spectator, when she was struck and killed by a race car while walking across the track), *Falkner v. Hinckley Parachute Ctr., Inc.*, 533 N.E.2d 941, 945 (Ill. App. Ct. 1989) (noting that the plaintiff’s signature on an agreement that he released the parachute school from “any and all liability claims, demands, or causes of action whatsoever arising out of any damages, loss or injury,” was sufficient to defeat plaintiff’s estate’s negligence claim), *Malecha v. St. Croix Valley Skydiving Club, Inc.*, 392 N.W.2d 727, 731 (Minn. Ct. App. 1986) (finding that the release language was sufficient to release the skydiving company from liability for negligence), *and Moss v. Fortune*, 340 S.W.2d 902, 903–04 (Tenn. 1960) (upholding a release for injuries sustained by plaintiff while horseback riding, finding that the plaintiff was aware of the dangers when he signed the release and therefore could not escape his own agreement), *with Frank v. Mathews*, 136 S.W.3d 196, 201 (Mo. Ct. App. 2004) (finding that the form release, which merely recited a statute regarding assuming the risk of equine activities, was not sufficiently clear to indicate a clear and unmistakable waiver and shifting of the risk), *and Mettler v. Nellis*, 695 N.W.2d 861, 865–66 (Wis. Ct. App. 2005) (finding the release void as against public policy for overbreadth because the release agreement was not limited to the plaintiff’s activity of horseback riding, but rather sought to release the defendant from “any liability or responsibility for any damage, injury, or illness”).

111. *See Reuther v. S. Cross Club, Inc.*, 785 F. Supp. 1339, 1342 (S.D. Ind. 1992) (finding that a release agreement’s listing of the dangers associated with scuba diving was not sufficient to release the defendant from injuries sustained by the plaintiff as a result of a wave striking the boat in which he was riding on the way to the scuba dive); *Sirek v. Fairfield Snowbowl, Inc.*, 800 P.2d 1291, 1295 (Ariz. Ct. App. 1990) (finding that the release agreement proffered by a ski rental shop was not sufficiently clear to alert the plaintiff that it was seeking to release the shop from liability for the negligence of its employees as opposed to defects in the equipment); *Conteh v. Majestic Farms*, 739 N.Y.S.2d 728, 729 (App. Div. 2002) (finding that the release did not clearly and unequivocally release the horseback facility operators from their own negligent acts and therefore was unenforceable in plaintiff’s suit); *Hiett v. Lake Barcroft Cmty. Ass’n*, 244 Va. 191, 195, 418 S.E.2d 894, 896 (1992) (finding that “liability for personal injury which may be caused by future acts of negligence are prohibited ‘universally’”).

112. 14 C.F.R. § 460.49 (2009); *see also id.* § 440 app. E.

leases the federal government from any liability associated with space flight—regardless of fault.¹¹³ The FAA's use of form language arguably suggests that the FAA believes the language used therein is sufficient to enable persons of ordinary intelligence to understand and appreciate its terms. The release also signals a policy determination by the United States that participants can waive liability for space flight.

It is difficult to imagine a court upholding the language of the federal government's release but denying the validity of a release for a company involved in launches or reentries that contain the same language. As a result, releases associated with commercial space flights that model those used by the federal government are more likely to be upheld.¹¹⁴

B. *Releases in the Wrongful Death Context*

Where a participant dies, most wrongful death statutes provide a participant's heirs with a cause of action for the participant's death, as well as for recovery for solace and any loss of consortium (if recognized) that is sustained by the participant's family. The question in those cases is whether a release by a participant is sufficient to defeat the claims of his/her heirs under a given state's wrongful death statute.

As a general matter, a "majority of the state courts . . . have held that a survivor cannot bring a wrongful death action if the decedent was barred from doing so in his lifetime, because the wrongful death claim is essentially derivative of the injury to the decedent."¹¹⁵ Specifically, "[a] judgment for or against the decedent in an action for his injuries commenced during his lifetime,

113. *Id.* § 440 app. E.

114. A court could conclude that the federal release merely relates the ability of the sovereign to control and govern its own responsibility and liability, and thus has no bearing on private agreements pertaining to allocation of liability or assumption of risk. Such a conclusion, however, ignores the very essence of the CSLA, which seeks to minimize the risk of *all* parties associated with a commercial space launch, and thereby promote additional research and a proliferation of corporate interest in commercial space flights. See *infra* Part VII.

115. *Schwarder v. United States*, 974 F.2d 1118, 1129 (9th Cir. 1992) (Alarcon, J., concurring in part and dissenting in part) (citing W. PAGE KEETON, ET AL., PROSSER AND KEETON ON THE LAW OF TORTS § 127 (5th ed. 1984)) ("The wrongful death action for the benefit of survivors is, like other actions based on injuries to others, derivative in nature, arising out of and dependent upon the wrong done to the injured person and thus barred when his claim would be barred." (footnotes omitted)).

or the compromise and release of such an action, will operate as a bar to any subsequent suit founded upon his death.”¹¹⁶ Interestingly, the Supreme Court of the United States adopted the same rationale in cases arising under the Federal Employers Liability Act (“FELA”), but not in cases involving seamen injured on U.S. territorial waters.¹¹⁷

Many courts have concluded that a waiver of liability by a decedent precludes litigation by his/her heirs.¹¹⁸ California and at least four other states, however, “have adopted a rule that permits survivors to maintain a cause of action for wrongful death, notwithstanding the fact that the decedent, or his or her estate settled the claim against the tortfeasor.”¹¹⁹ In striking down the

116. *Id.* at 1129 (quoting KEETON, *supra* note 115, § 121); *see also* Walrod v. S. Pac. Co., 447 F.2d 930, 955 (9th Cir. 1971); Frescoln v. Puget Sound Traction, Light & Power Co., 225 F. 441, 443 (W.D. Wash. 1915); Woodward Iron Co. v. Craig, 53 So. 2d 586, 593 (Ala. 1951); Simmons First Nat’l Bank v. Abbott, 705 S.W.2d 3, 5 (Ark. 1986); Kling v. Torello, 87 A. 987, 988 (Conn. 1913); Perry v. Philadelphia, Balt. & Wash. R.R. Co., 77 A. 725, 734–35 (Del. Super. Ct. 1910); Variety Children’s Hosp. v. Perkins, 445 So. 2d 1010, 1012 (Fla. 1983); Fountas v. Breed, 455 N.E.2d 200, 204–05 (Ill. App. Ct. 1983); Perry’s Adm’r v. Louisville & Nashville R.R. Co., 251 S.W. 202, 204 (Ky. Ct. App. 1923); Harris v. Illinois Cent. R.R. Co., 71 So. 878, 878–79 (Miss. 1916); Schmelzer v. Cent. Furniture Co., 158 S.W. 353, 354–55 (Mo. 1913); Hindmarsh v. Sulpho Saline Bath Co., 187 N.W. 806, 808 (Neb. 1922); Kelliher v. N.Y. Cent. & Hudson River R.R. Co., 105 N.E. 824, 825–26 (N.Y. 1914); Edwards v. Interstate Chem. Corp., 87 S.E. 635, 636 (N.C. 1916); Haws v. Luethje, 503 P.2d 871, 875 (Okla. 1972); Price v. Richmond & D.R. Co., 12 S.E. 413, 413–14 (S.C. 1890); St. Louis Sw. Ry. Co. v. Hengst, 81 S.W. 832, 833 (Tex. Civ. App. 1904); Legg v. Britton, 24 A. 1016, 1017 (Vt. 1892); Va. Elect. & Power Co. v. Decatur, 173 Va. 153, 159, 3 S.E.2d 172, 173–74 (Va. 1939); Parsons v. Roussalis, 488 P.2d 1050, 1052 (Wyo. 1971).

117. *Compare* Mellon v. Goodyear, 277 U.S. 335, 344 (1928) (“By the overwhelming weight of judicial authority, where a statute of the nature of Lord Campbell’s Act in effect gives a right to recover damages for the benefit of dependents, the remedy depends upon the existence in the decedent at the time of his death of a right of action to recover for such injury. A settlement by the wrongdoer with the injured person [under the FELA], in the absence of fraud or mistake, precludes any remedy by the personal representative based upon the same wrongful act.”), *with* Sea-Land Servs., Inc. v. Gaudet, 414 U.S. 573, 579, 583 (1974) (adopting minority rule for cases involving seamen injured in territorial waters).

118. *See, e.g.*, Grbac v. Reading Fair Co., 688 F.2d 215, 216–17 (3d Cir. 1982) (upholding release against the decedent’s widow and minor children because “it was not against public policy” and holding that “a release which is valid against the decedent does bar a wrongful death action”); Milne v. USA Cycling Inc., 489 F. Supp. 2d 1283, 1289–90 (D. Utah 2007) (upholding release of liability for negligence on the basis that “while an action for wrongful death is an independent action accruing in the heirs of the deceased, [it] is based on the underlying wrong done to the decedent.” (quoting Jensen v. IHC Hosp., Inc., 944 P.2d 327, 332 (Utah 1997))); Booth v. Bowen, No. 2006-217, 2007 U.S. Dist. LEXIS 78721, at *10–11 (D.V.I. Oct. 18, 2007) (“The Court is mindful that the Virgin Islands wrongful death statute was designed to give heirs the right to recover for their pecuniary losses caused by their decedent’s death. That policy is not in conflict with the strong public policy reasons for holding parties to their written word.” (citations omitted)).

119. *Schwarder*, 974 F.2d at 1130; *see also* Blackwell v. Am. Film Co., 209 P. 999, 1001

portion of an agreement by the decedent waiving the claims of his heirs and personal representatives, however, the California Court of Appeals drew a distinction between waiving a wrongful death action and assuming the risks of an activity.¹²⁰

Specifically, the court noted that because the heirs had a separate and distinct claim under California's wrongful death statute, the decedent "had no power or right to waive that cause of action on behalf of his heirs."¹²¹ Nevertheless, the court also noted that "a plaintiff in a wrongful death action is subject to any defenses which could have been asserted against the decedent, including an express agreement by the decedent to waive the defendant's negligence and assume all risks."¹²² As a result, the court drew a distinction between "the legal *ineffectiveness* of a decedent's pre-injury release of his heirs's subsequent wrongful death action and the legal *effectiveness* of an express release of negligence by a decedent which provides a defendant with 'a complete defense.'"¹²³ The court thus concluded that the heirs's wrongful death claim was barred because the decedent had contractually assumed all of the risks associated with his actions.¹²⁴

Accordingly, releases asking the participant to assume the risks associated with space flight stand a better chance of defeating the claims of heirs, assigns, and representatives in a later wrongful death suit. The question ultimately becomes whether state and federal public policy should permit such assumption of risk contracts to defeat a claim for injuries or death related to the space-flight activity. As discussed previously, the answer varies from jurisdiction to jurisdiction.¹²⁵

(Cal. 1922); *Goodyear v. Davis*, 220 P. 282, 285–86 (Kan. 1923); *Alfone v. Sarno*, 432 A.2d 857, 865 (N.J. 1981); *De Hart v. Ohio Fuel Gas Co.*, 85 N.E.2d 586, 589 (Ohio Ct. App. 1948); *Rowe v. Richards*, 151 N.W. 1001, 1003–04 (S.D. 1915).

120. *Madison v. Superior Court*, 250 Cal. Rptr. 299, 303–04 (Ct. App. 1988).

121. *Id.* at 303.

122. *Id.*

123. *Id.* at 303–04 (quoting *Scroggs v. Coast Cmty. College Dist.*, 239 Cal. Rptr. 916, 918 (Ct. App. 1987)).

124. *Id.* at 307.

125. As long as a choice of law agreement specifically indicates an intent to apply a certain state's law in a tort case, some states hold such agreements to be enforceable. *See, e.g., Spectrum Creations, L.P. v. Carolyn Kinder Int'l, LLC*, No. SA-05-CV-750-XR, 2008 U.S. Dist. LEXIS 10603, at *175–78 (W.D. Tex. Feb. 13, 2008) (finding that a choice of law provision in a contract, if worded properly and broadly enough, would cover tort claims as well); *see also Coastal Steel Corp. v. Tilghman Wheelabrator Ltd.*, 709 F.2d 190, 203 (3d Cir. 1983) (finding that tort claims were governed by forum selection clause because such

C. Does the Federal Policy Regarding Releases by Space Flight Participants Preempt State Law or Policies to the Contrary?

The CSLA makes clear that where a state's law conflicts with the requirements of the FAA or the federal government, the state's laws must give way to the CSLA (or regulations promulgated there under) pursuant to the Supremacy Clause of the United States Constitution.¹²⁶ Specifically, the CSLA provides that “[a] State or political subdivision of a State . . . may adopt or have in effect a law, regulation, standard, or order consistent with [the CSLA] that is in addition to or more stringent than a requirement of, or regulation prescribed under” the CSLA.¹²⁷

Historically, the Supreme Court has been reluctant to preempt state laws or regulations with federal law absent a clear and manifest intent on the part of Congress to displace state authority over the regulated area.¹²⁸ Congressional intent to preempt state authority can be expressed in the statute itself, or implied by the scope or coverage of the federal legislation.¹²⁹ Even when the goal

claims arose from the existence of the contractual relationship—the contract was “the basic source of *any* [tort] duty”); *Travelers Prop. Cas. Co. of Am. v. Centimark Corp.*, No. 2:04-cv-0916, 2005 U.S. Dist. LEXIS 35611, at *7 (S.D. Ohio May 3, 2005) (holding that the forum selection clause covered “any dispute,” including plaintiff’s negligence claims, because “[t]he word ‘any’ is all-encompassing language, indicating the parties’ belief that all actions regarding their relationship will be governed by the forum selection clause”).

126. See 49 U.S.C. § 70117(c) (2006).

127. *Id.* (emphasis added). The italicized language is relevant because many similar provisions under federal law only discuss “state” action, and have been held by courts to not extend to political subdivisions of a state. See, e.g., *CSX Transp., Inc. v. City of Tullahoma*, 705 F. Supp. 385, 387 (E.D. Tenn. 1988) (“§ 205 of the FRSA does not permit an exception to preemption where a municipality acts by ordinance to regulate an ‘essentially local’ railroad safety hazard. The plain language of the statute itself indicates that it applies only to states.”); *Johnson v. S. Ry. Co.*, 654 F. Supp. 121, 124 (W.D. N.C. 1987) (concluding that the exception listed in 49 U.S.C. § 20106 only permits states—not municipalities—to set more stringent speed limits for trains, and that even if the municipality had such authority, there was nothing in the law indicating that any assessment of the local hazard was conducted).

128. See, e.g., *Medtronic, Inc. v. Lohr*, 518 U.S. 470, 485 (1996) (“In all pre-emption cases, and particularly in those in which Congress has ‘legislated . . . in a field which the States have traditionally occupied,’ . . . we ‘start with the assumption that the historic police powers of the States were not to be superseded by [federal legislation] unless that was the clear and manifest purpose of Congress.’” (quoting *Rice v. Santa Fe Elevator Corp.*, 331 U.S. 218, 230 (1947))).

129. *Compare Cipollone v. Liggett Group, Inc.*, 505 U.S. 504, 519–20 (1992) (finding that all state regulation of warnings on cigarette packaging—including those alleged in common law failure-to-warn claims—were preempted by the Public Health Cigarette Smoking Act of 1969, 15 U.S.C. §§ 1331–1340 (2006)), with *Jones v. Rath Packing Co.*, 430 U.S. 519, 543 (1977) (finding that the enforcement of a state statute regarding the labeling

of preemption is not specifically expressed by Congress, federal requirements may still preempt state action in three circumstances: (1) where the federal and state laws are in actual conflict; (2) where the federal regulation is so expansive and exhaustive that it leaves no room for state supplementation of federal law; or (3) where the state regulation, policy, or rule stands as an obstacle to the accomplishments of a federal policy or goal.¹³⁰

The CSLA does not expressly address the validity of releases and waivers of liability between space flight participants and licensees or permittees. Nevertheless, the refusal of a state to recognize the validity of a form release or waiver between a space flight participant and a licensee or permittee may obstruct the full purposes and objectives of the CSLA.¹³¹ For example, in *Geier v. American Honda Motor Co., Inc.*, the Supreme Court was asked to determine whether a state common-law suit could be brought against Honda Motor Company, Inc. ("Honda") for failing to include passive restraints when Federal Motor Vehicle Safety Standards did not require such restraints in all vehicles.¹³² Interestingly, the Federal Motor Vehicle Safety Act had an express preemption clause, but also contained a savings provision indicating that "[c]ompliance with' a federal safety standard 'does not exempt any person from any liability under common law.'"¹³³ As a result, the Supreme Court's analysis focused on whether state common law suits, claiming that additional standards were required, conflicted with the federal standards such that the common law suits were preempted under the Supremacy Clause.¹³⁴

The Court noted that the Department of Transportation's ("DOT") decision not to require passive restraints in all vehicles reflected a conscious balancing of the alternatives and risks in an

of flour was preempted because of its interference with the goal of the Fair Packaging and Labeling Act, 15 U.S.C. §§ 1451–1461 (2006)).

130. See *Fla. Lime & Avocado Growers, Inc. v. Paul*, 373 U.S. 132, 142–43 (1963) (finding that where compliance with state and federal law is impossible, state law is preempted); *Rice*, 331 U.S. at 230 (finding that state law will be preempted where federal regulation is "so pervasive as to make reasonable the inference that Congress left no room for the States to supplement it"); *Hines v. Davidowitz*, 312 U.S. 52, 67–68 (1941) (finding that state law is preempted when it "stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress").

131. See generally *Hines*, 312 U.S. at 67.

132. 529 U.S. 861, 864–65 (2000).

133. *Id.* at 867–68.

134. See *id.* at 869–72.

effort to promote safety in passenger automobiles.¹³⁵ The Court concluded that Geier's claim was premised upon a duty on the part of Honda to install passive restraints in the car he purchased, and the same state rule of law "would have required manufactures of all similar cars to install airbags rather than other passive restraint systems. . . ."¹³⁶ Accordingly, the common-law suit alleging negligence on the part of Honda "stood 'as an obstacle to the accomplishment and execution of' the important means-related federal objectives" articulated by the Secretary of Transportation.¹³⁷ The Court even indicated that it "place[d] some weight upon DOT's interpretation of [the federal safety standards] objectives and its conclusion . . . that a tort suit such as this one would 'stan[d] as an obstacle to the accomplishment and execution' of those objectives."¹³⁸

Given that Congress's goal for the CSLA is to promote space flight and permit parties to contractually limit their statutory liability,¹³⁹ the argument in *Geier* could be used to claim that any state law or prohibition on the release of such claims obstructs Congress's goal to promote this particular means of space exploration.¹⁴⁰ Because the very essence of the CSLA is the minimization and reallocation of financial responsibility so as to encourage

135. See *id.* at 877–81. The Court further noted that "DOT now tells us through the Solicitor General, the 1984 version of the [safety standards] 'embodies the Secretary's policy judgment that safety would best be promoted if manufacturers installed *alternative* protection systems in their fleets rather than one particular system in every car.'" *Id.* at 881 (quoting Brief for the United States as Amicus Curiae Supporting Affirmance at 25, *Geier v. American Honda Motor Co.*, 529 U.S. 861 (2000) (No. 98-1811)).

136. *Id.* at 881.

137. *Id.* (quoting *Hines*, 312 U.S. at 67).

138. *Id.* at 883 (quoting Brief for the United States as Amicus Curiae Supporting Affirmance, *supra* note 135, at 26).

139. Space Launch Act, *supra* note 17, at § 2.

140. Such an argument does not appear to be hindered by the Supreme Court's recent decision in *Wyeth v. Levine* finding that no preemption existed. See *Wyeth v. Levine*, 129 S. Ct. 1187, 1204 (2009) (rejecting Wyeth's claims that FDA regulations *in effect* operated to preempt state law failure-to-warn claims). The Court in *Wyeth* noted, however, that "the purpose of Congress is the ultimate touchstone in every pre-emption case." *Id.* at 1194 (quoting *Medtronic, Inc. v. Lohr*, 518 U.S. 470, 485 (1996)). Further, "[i]n all pre-emption cases, and particularly in those in which Congress has 'legislated . . . in a field which the States have traditionally occupied, . . . we start with the assumption that the historic police powers of the States were not to be superseded by the Federal Act unless that was the clear and manifest purpose of Congress.'" *Id.* at 1194–95 (internal quotation marks omitted) (quoting *Lohr*, 518 U.S. at 485). Put simply, space has never been an area of law that states have traditionally regulated, and thus federal goals regarding space launch and reentry activities would seem paramount.

more private participation in space exploration and commerce,¹⁴¹ a state law that effectively prevents a private company from obtaining an effective waiver certainly frustrates congressional intent. This position would be strengthened in those instances where permittees and licensees use the same form release for space flight participants that is used to release claims by the federal government.

VIII. STATE LEGISLATION AFFECTING COMMERCIAL SPACE LAUNCHES

Interestingly, the Commonwealth of Virginia has led the nation in passing legislation encouraging companies to engage in commercial space launches within its borders. Specifically, Virginia passed the Space Flight Liability and Immunity Act of 2007,¹⁴² which “effectively made Virginia the most progressive state in the country in addressing the challenge that existing tort law posed to emerging human spaceflight transportation companies.”¹⁴³ The Act provides immunity for “a participant injury resulting from the risks of space flight activities, provided that the participant has been informed of the risks of space flight activities as required by federal law”¹⁴⁴ Where the statutorily mandated warnings are provided, the Act gives civil immunity to space flight entities, which include “any manufacturer or supplier of components, services, or vehicles that have been reviewed by the United States Federal Aviation Administration as part of issuing such a license, permit, or authorization.”¹⁴⁵ Although the Act does not cover gross negligence or willful misconduct, it covers all other types of negligence actions.¹⁴⁶

Virginia also enacted the Zero G Zero Tax Act of 2008, which “provide[s] an exemption from state income taxes to any space

141. Space Launch Act, *supra* note 17, at § 2.

142. Act of Apr. 4, 2007, ch.893, 2007 Va. Acts 2430, 2430–31 (codified at VA. CODE ANN. §§ 8.01-227.8 to 8.01-227.10 (Repl. Vol. 2007)).

143. See QUARTERLY LAUNCH REPORT: 4TH QUARTER 2008, *supra* note 10, at SR-2.

144. VA. CODE ANN. § 8.01-227.9(A) (Repl. Vol. 2007).

145. *Id.* §§ 8.01-227.8 to 8.01-227.9 (Repl. Vol. 2007).

146. *Id.* § 8.01-227.9 (Repl. Vol. 2007). Virginia arguably needed to pass the legislation because its public policy prohibits releases of future negligence, and only the General Assembly could modify the public policy against such releases. See *Estes Express Lines, Inc. v. Chopper Express, Inc.*, 273 Va. 358, 365, 641 S.E.2d 476, 479 (2007) (citing *Hiett v. Lake Barcroft Cmty. Ass'n*, 244 Va. 191, 194–95, 418 S.E.2d 894, 896 (1992)).

transportation company doing business in Virginia with the intent either to launch payloads from the Mid-Atlantic Regional Spaceport (MARS) or conduct spaceflight training.”¹⁴⁷ In addition, the exemption from income tax is not affected by the “failure, postponement or cancellation of a launch of any orbital or sub-orbital space facility, space propulsion system, space vehicle, satellite or space station of any kind or the destruction of any launch vehicle or any components thereof.”¹⁴⁸

Virginia’s interest in space exploration and encouraging space commerce is not a recent development. In 1995, the General Assembly passed the Virginia Commercial Space Flight Authority Act (“VCSFAA”), which established Virginia’s Commercial Space Flight Authority (“VCSFA”).¹⁴⁹ In short, the “General Assembly . . . determined that there exists in the Commonwealth a need to (i) disseminate knowledge pertaining to scientific and technological research and development among public and private entities, including but not limited to knowledge in the area of commercial space flight, and (ii) promote industrial and economic development.”¹⁵⁰ The Board of Directors of the VCSFA has thirteen members in total, comprised as follows:

the President of the Center for Innovative Technology, the President of Old Dominion University, the Secretary of Commerce and Trade, and the Secretary of Technology . . . four members representing the commercial space flight industry; two members representing the telecommunications industry; one member representing the County of Accomack; one member representing the County of Northampton, and one at-large member.¹⁵¹

The VCSFAA gives the Board of Directors considerable authority to act as an independent body, but its primary purpose is to utilize funds—public and private—to encourage and promote commercial space participation in Virginia.¹⁵² The MARS facility on the eastern shore and Virginia’s quick response to the CSLA are a

147. See QUARTERLY LAUNCH REPORT: 4TH QUARTER 2008, *supra* note 10, at SR-2 (citing VA. CODE ANN. § 58.1-609.3(13) (Cum. Supp. 2008)).

148. VA. CODE ANN. § 58.1-609.3(13) (Repl. Vol. 2008).

149. Act of Apr. 6, 1995, ch. 758, 1995 Va. Acts 1312, 1313 (codified at VA. CODE ANN. §§ 9-266.1 to 9-266.19 (Cum. Supp. 1995)). The VCSFAA is currently located in title 2.2 of the Virginia Code. See VA. CODE ANN. §§ 2.2-2201, 2.2-2202, 2.2-2204 to 2.2-2217 (Repl. Vol. 2008); *id.* § 2.2-2203 (Cum. Supp. 2009).

150. VA. CODE ANN. § 2.2-2202 (Repl. Vol. 2008).

151. *Id.* § 2.2-2203 (Cum. Supp. 2009).

152. See *id.* §§ 2.2-2201, 2.2-2202, 2.2-2204 to 2.2-2217 (Repl. Vol. 2008); *id.* § 2.2-2203 (Cum. Supp. 2009).

testament to the commitment of Virginia and the VCSFA to advancing commercial space participation in the Commonwealth.

Following Virginia's lead, the state of Florida passed the Informed Consent for Spaceflight Act in 2008, which similarly provides immunity for companies engaged in commercial space flight.¹⁵³ Florida also passed the Qualified Spaceflight Contractor Tax Refund Act, which allows space flight contractors to receive refunds—based upon new jobs and wages paid to employees—after entering into agreements with the state of Florida.¹⁵⁴

The FAA expressed that the actions of Virginia and Florida “took other states, and much of the industry, by surprise given the speed with which [they were] accomplished.”¹⁵⁵ As a result, the FAA believes that it is “likely that other states will pass similar legislation in the years ahead.”¹⁵⁶

IX. CONCLUSION

As populations continue to expand and natural resources continue to wane, the need for expansion beyond the confines of our planet becomes even more important. Just as an infant wobbles taking her first steps, so too must mankind wobble its way into safe and economically feasible space travel. As a society, and as a species, we now stand at the precipice of a new era of exploration—one that has great risk but also promises great reward.

The CSLA and the statutory regimes created by Virginia and Florida provide some comfort and assurance to those willing to boldly go where only a select few have gone before. As the market for development and procurement of space travel expands, the United States and other jurisdictions will likely continue to provide similar protections for private companies wishing to take the chance on what might be. Although there is risk, the payoff and profits associated with reaching for the stars will likely drive the next generation of explorers and entrepreneurs into space—just as they drove our ancestors to cross mountain ranges, traverse deserts, and set sail in wooden ships for distant shores.

153. FLA. STAT. ANN. § 331.501 (West Cum. Supp. 2009).

154. *Id.* § 288.1045 (West Cum. Supp. 2009).

155. QUARTERLY LAUNCH REPORT: 4TH QUARTER 2008, *supra* note 10, at SR-3.

156. *Id.*