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In Space, Nobody Can Hear You Scream Tort

Barton E. Showalter

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IN SPACE, NOBODY CAN HEAR YOU SCREAM “TORT!”

Barton E. Showalter

I. A BOTCHED LAUNCH ............................... 796

II. NASA: FROM EXPLORATION TO EXPLOITATION .............................. 799
   A. THE EARLY YEARS ................................................. 799
   B. A TWO-FACED SPACE SHUTTLE .................. 800
   C. CONESTOGA I: PIONEER OF THE PRIVATE INDUSTRY ................. 802
   D. THE CHALLENGER DISASTER AND BEYOND ... 803
   E. INSURING THE NEW SPACE ENTREPRENEUR .. 806

III. WHO'S TO BLAME? ................................. 808
   A. STRICTLY TORTS .............................................. 808
   B. NEGLIGENCE THROUGH INTERNATIONAL TREATIES ....................... 809
   C. THE GOVERNMENT STEPS IN ................................... 813
   D. THE CONTRACT IS KING .................................. 814

IV. THE COMMERCIAL SPACE LAUNCH ACT .... 817
   A. A RACE TO PRIVATIZATION .................................. 817
   B. HURDLE ONE AND THE ORIGINAL ACT ............... 818
   C. HURDLE TWO AND THE AMENDMENTS ............... 824

V. BOTCHED LAUNCHES GO TO COURT .... 832
   A. LEXINGTON INSURANCE v. MC DONNELL DOUGLAS ................. 833
   B. APPALACHIAN INSURANCE v. MC DONNELL DOUGLAS .................. 835
   C. MARTIN MARIETTA v. INTELSAT ............................... 836

VI. CRIES FOR TORT SHOULD FALL ON DEAF EARS ........................................... 842

795
I. A BOTCHED LAUNCH

THE MASSIVE Titan III rocket sat on the launch pad while technicians, working furiously on the nose cone assembly, prepared the Intelsat spacecraft for its long journey to geosynchronous orbit. 1 Unfortunately, the telecommunications satellite never reached its final destination. A Martin Marietta 2 technician, responsible for mating the satellite to its orbital booster, mistakenly wired the deployment mechanism for a pair of satellites rather than for the intended single satellite. At the critical time of deployment of both the satellite and its Payload Assist Module (PAM), the resulting computer commands failed to eject the cargo from the second stage of the Titan III. After several minutes, the confused ground control team finally managed to separate the payload from the rocket. 3

The telecommunications satellite, originally designed to perch 22,300 miles above the equator, fell uselessly into low Earth orbit. Intelsat claimed that the failure of the Martin Marietta ground crew to detect a key wiring error caused the late separation. 4 In a suit for declaratory judgment, a federal district court found Martin Marietta free from liability for negligence or even gross negligence. 5

The court based this decision on the public policy an-

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2 Martin Marietta Corp. is a large aerospace firm that builds the Titan III rocket.
3 See Memorandum in Support of Plaintiff's Motion to Dismiss Counterclaim at 14, Martin Marietta Corp. v. Intelsat, 763 F. Supp. 1327 (D. Md. 1991) (No. MJG 90-1840) [hereinafter Martin Marietta Memorandum].
4 Intelsat claims Martin Marietta "miswired the launch vehicle so that the satellite did not and could not separate from the launch vehicle in response to commands sent by the Martin Marietta flight computer." Memorandum in Opposition to Plaintiff's Motion to Dismiss Counterclaims at 2, Martin Marietta Corp. v. Intelsat, 763 F. Supp. 1327 (D. Md. 1991) (No. MJG 90-1840) [hereinafter Intelsat Memorandum].
nounced in the 1988 Amendments\(^6\) (Amendments) to the original Commercial Space Launch Act of 1984 (CSLA).\(^7\) On appeal, the Fourth Circuit reversed the dismissal of gross negligence claims, but upheld the dismissal of negligent and negligent misrepresentation claims based on the sophistication of the parties.\(^8\)

Almost ten years before the Martin Marietta mishap, the National Aeronautics and Space Administration (NASA) and the Reagan administration began to encourage the development of a private commercial space launch industry.\(^9\) Following the first private launch of the Conestoga I, President Reagan demanded and obtained the CSLA, which consolidated and streamlined the commercial launch licensing procedure.\(^10\) In 1986, the Challenger disaster painfully exposed the unworkable inconsistencies between NASA’s original charter to develop space technology\(^11\) and a more recent endeavor to operate a viable commercial launch system.\(^12\) Only

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\(^8\) Martin Marietta v. International Communications Satellite Org., 978 F.2d 140 at 146 (4th Cir. 1992).

\(^9\) See infra part II.B.

\(^10\) See infra part IV.B.


> The bill establishes a new civilian agency . . . to develop a comprehensive program of research and development in aeronautical and space sciences and related matters (including the study and solution of the problems of manned and unmanned flight within and outside the earth’s atmosphere and the development, construction, testing, and operation for research purposes of aircraft, missiles, satellites, and other space vehicles).


\(^12\) By 1970, NASA was launching more payloads for other organizations such as COMSAT, the Department of Defense, and foreign corporations, than for itself. ROGER E. BILSTEIN, ORDERS OF MAGNITUDE, A HISTORY OF THE NACA AND NASA, 1915-1990, at 98 (1989). The NASA appropriations bill for fiscal year 1984 reflects later efforts by both NASA and Congress to establish the Shuttle program as a more economically self-sufficient enterprise.

Space Shuttle Marketing. Technical evolution of the space shuttle has
months after the Challenger disaster, the Reagan Administration drastically curtailed commercial use of the Shuttle, giving birth to the private expendable launch vehicle (ELV) industry. Finally, in 1988, to save a small and shrinking group of private launch companies, Congress adopted the Amendments to ameliorate the insurance and liability problems plaguing the young industry. The district court in *Martin Marietta* relied on the Amendments to dismiss all tort claims and deferred solely to the contract between the parties as a basis of liability. On appeal, the Fourth Circuit reaffirmed the importance of the contract in space launches, but reversed the dismissal of gross negligence. This recent decision reviving gross negligence may fly in the face of the legislative purpose of the Amendments and send a chilling signal to the private space launch community that tort may not be dead in space. The impact of these recent court decisions is critical to a young industry estimated to generate 35 million
jobs and a one trillion dollar global economy by the year 2010.17

This comment first explores the history of the space launch industry, emphasizing U.S. efforts to encourage the industry through deregulation and public policy pronouncements. Next, it traces the development of launchers’ liability for damaged or lost payloads, from the strict tort liability to the recent legislation mandating cross-waivers of liability among all launch participants. The comment then discusses two congressional efforts to clear major hurdles impeding the growth of the private space launch industry: (1) consolidation of the licensing process in the original CSLA and (2) elimination of space insurance and liability problems in the Amendments. Finally, the comment considers the current state of regulation in light of recent court decisions and offers final comments on the future of the commercial space launch industry.

II. NASA: FROM EXPLORATION TO EXPLOITATION

A. THE EARLY YEARS

NASA possessed complete control over domestic access to space from the launch of the Explorer in 1958 until the privately financed launch of the Conestoga I on September 9, 1982.18 During this time, space activities concentrated primarily on exploration and research of space,19 but the recent Shuttle program shifted its focus to the commercial development of space.20 This transition from

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19 Karl-Heinz Bockstiegel, Commercial Space Activities: Their Growing Influence on Space Law, 12 ANNALS AIR & SPACE L. 175, 175 (1987). “At that time, the commercial use of space was little more than the stuff of science fiction novels.” Hughes Communications Galaxy, Inc. v. United States, 26 Cl. Ct. 123, 125-26 (1992).
20 In the early 1980s, NASA began to sell space on the Shuttle to commercial entities to help fund the young and extremely expensive program. Hughes, 26 Cl.
government exploration to private exploitation created many problems. For instance, NASA's original administrative purpose was to develop and perfect space technology and to allow private enterprise and the free markets to assess the commercial usefulness of this technology.\textsuperscript{21} The Shuttle program drastically shifted these priorities.

\section*{B. A Two-Faced Space Shuttle}

NASA's Space Shuttle program began as a purely governmental endeavor. At the ceremonies following the return of Space Shuttle Columbia in 1982, President Reagan announced a policy to encourage the domestic commercial use of space.\textsuperscript{22} The Presidential Space Policy declared the Shuttle to be the "primary space launch system for both national security and civil government missions."\textsuperscript{23} At the same time, the policy promised to "provide a climate conducive to expanded private sector investment and involvement in space activities."\textsuperscript{24}

NASA responded to Reagan's Presidential Directive with its own Commercial Space Policy (NCSP).\textsuperscript{25} The NCSP identifies technical, financial and institutional risks

\footnotesize
\begin{itemize}
\item\textsuperscript{21} Ct. at 125. NASA attracted commercial clients with an attractive pricing plan and the catchy advertising slogan "We Deliver." \textit{Id.}
\item\textsuperscript{24} Presidential Directive, \textit{supra} note 22, at 873.
\item\textsuperscript{25} \textit{Id.} at 874. Despite these earlier efforts to encourage development of a private commercial space launch industry, not until the events following the Challenger disaster did the market open up for private launch operators. The President removed the Shuttle from commercial operations, which immediately spawned a private ELV industry. \textit{See American Satellite Co. v. United States}, 26 Cl. Ct. 146, 156 (1992).
\end{itemize}
to the private launch industry and proposes several initiatives to reduce these barriers. The implementation of these initiatives achieves five underlying goals, which are: (1) better communication with the private sector; (2) non-intervention in private investment decisions; (3) support of private space projects that are more efficient than government operations; (4) investment in research and facilities to encourage private investment; and (5) assistance with private sector endeavors offering potential benefits for the nation. Furthermore, NASA called for the elimination of any laws inconsistent with the policies of the NCSP.

Following the Presidential Directive and the NCSP, the U.S. government tried to wean the private sector from the launch services provided by NASA and the Air Force. In 1983 NASA discontinued its participation in the Delta and Atlas/Centaur launch systems. Increased demand for satellite launch services and an anticipated reduction in the Shuttle commercial manifest led several entities, like the French Ariane system, to begin aggressively marketing their launch services to U.S. companies. The Shuttle's sophistication, which drove the cost of putting a one pound payload into orbit from $3800 for the Saturn V to over $6000 for the Shuttle, provided additional impetus for new launch companies to enter the market.

NASA, however, in apparent conflict with the Presiden-
tional Directive of 1982 and their own policy of encouraging private sector launch capabilities, continued marketing its launch services to private vendors.32 One course, supported by the Presidential Directive and NASA's own space policy, encouraged independent development of a private launch industry and reserved the Shuttle for special missions.33 Another course, spurred on by the unique capabilities of the Shuttle and NASA's strong desire to involve private industry in the Shuttle program, pressured NASA to establish the commercial feasibility of the Shuttle.34

C. CONESTOGA I: PIONEER OF THE PRIVATE INDUSTRY

On September 9, 1982, despite NASA's virtual monopoly on commercial space launches, a small group of entrepreneurs successfully launched a modified Minuteman I second-stage missile, the Conestoga I, from Matagorda Island, Texas.35 The launch of the Conestoga I was not a technological miracle, but it represented the first American launch that did not involve direct government participation.36 This private commercial space effort revealed the inadequacies of both the existing federal laws and the agencies overseeing purely private launches.37 Because either NASA or the Air Force had handled all of the commercial launches to date, the particular controls for a

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33 Hughes, 26 Cl. Ct. at 129-32.

34 Lamontagne, supra note 25, at 149-50.


37 Yelton, supra note 18, at 119. For a recount of the harrowing experience to receive permission to launch the Conestoga I, see Dula, supra note 17, at 179-81. A less legalese treatment of the launch appears in Harrigan, supra note 35, at 168.
launch were found in launch service agreements executed between the commercial user and the government, not in federal legislation.\textsuperscript{38} No single law addressed a purely private venture. To receive government approval to launch the Conestoga I, Space Services, Inc. negotiated with nearly twenty federal agencies.\textsuperscript{39} To alleviate these inefficiencies, President Reagan issued an Executive Order designating the Department of Transportation (DOT) as the lead agency responsible for licensing commercial space ventures.\textsuperscript{40}

In response to the President's Order, Congress passed the CSLA, which established the Office of Commercial Space Transportation (OCST) and set forth guidelines to regulate and license private space launch ventures.\textsuperscript{41} The new office attempted to deregulate and promote the industry while maintaining control over national security issues, insurance requirements, and payload monitoring.\textsuperscript{42} In the words of Elizabeth Dole, Secretary of Transportation, the commercial space launch industry was now "open for business."\textsuperscript{43}

D. The Challenger Disaster and Beyond

The commercial space launch industry may have been open for business, but the business was still run by NASA

\textsuperscript{38} See infra part III.D.


\textsuperscript{41} 49 U.S.C. app. §§ 2601-2623 (1988). Some NASA officials opposed creation of the OCST, fearing that a decrease in commercial users on the Shuttle would lead to budget cuts in NASA programs. Hughes, 26 Cl. Ct. at 130. The tension mounted as NASA strived to develop a commercially feasible launch system in the Shuttle while the President and Congress sought to encourage the floundering ELV industry. Id.


\textsuperscript{43} Id. (statement by Elizabeth Dole, Secretary of Transportation, Expendable Launch Vehicle Order Ceremony, The White House (Feb. 24, 1984)).
and its rival, Arianespace.\textsuperscript{44} NASA had begun a banner year, including a record fifteen scheduled flights, when Challenger left the Kennedy Space Center launch pad on January 28, 1986.\textsuperscript{45} Moments later, a faulty O-ring caused a spectacular explosion, killing all seven astronauts and ending NASA's misguided efforts to develop an economically viable commercial launch system.\textsuperscript{46} The Rogers Commission, appointed by President Reagan, revealed that NASA's decision-making process was unnecessarily encumbered by commercial pressures to meet ambitious launch schedules.\textsuperscript{47} The accident sparked immediate executive action, which shifted the burden of commercial space development to struggling private entrepreneurs and their expendable launch vehicles (ELVs).\textsuperscript{48}

\textsuperscript{44} Heydon, supra note 29, at 140. By the end of 1985 the young Ariane program already boasted a backlog of 41 launch contracts, many with customers outside of Europe. \textit{id.}

\textsuperscript{45} Lamontagne, supra note 25, at 149.


\textsuperscript{47} Lamontagne, supra note 25, at 152. The Challenger explosion highlighted the inadequacy of the program as a dependable and cost-effective commercial launch provider. \textit{id.} Although the original purpose of the Space Shuttle was to provide a launch system for both national security and civil government missions, the Shuttle program felt increasing pressure to prove its economic viability as a commercial carrier up until the Challenger disaster. \textit{REPORT OF THE PRESIDENTIAL COMMISSION ON THE SPACE SHUTTLE CHALLENGER ACCIDENT} 82 (June 6, 1986). The Rogers Commission reported that emphasis on "operational" as opposed to "developmental" goals caused increasing pressure to launch, sometimes sacrificing safety concerns. \textit{id.} at 164-65. Both NASA officials and employees of Morton Thiokol expressed concern that the "O-rings" in the solid rocket boosters may fail if temperatures reached below 53 degrees Fahrenheit. \textit{id.} at 82. The temperature at the time the Challenger left the launch pad was 37 degrees. \textit{Hughes}, 26 Cl. Ct. at 129.

\textsuperscript{48} Heydon, supra note 29, at 140. The President stated: The private sector, with its ingenuity and cost effectiveness, will be playing an increasingly important role in the American space effort. Free enterprise corporations will become a highly competitive method of launching commercial satellites and doing those things which do not require a manned presence in space. Statement by President Reagan, \textit{22 WEEKLY COMP. PRES. DOC.} 1104 (Aug. 15, 1986). Following the Challenger incident and the executive pronouncement severely limiting commercial launches on the Shuttle, the U.S. government discovered the difficulty involved in transferring launch services to the private industry. \textit{Hughes}, 26 Cl. Ct. at 131. The President's Economic Policy Council categorized the 44 remaining commercial payloads, but only 20 qualified as national security, foreign policy, or Shuttle-
Ironically, the Shuttle disaster provided opportunities for the private sector to enter the launch market, but at the same time discouraged participation by increasing space insurance premiums.\textsuperscript{49} To add to this dilemma, the European Space Agency's Ariane rocket fleet already offered dependable and relatively inexpensive launch services, which lured several American companies away from domestic operations.\textsuperscript{50} The Shuttle explosion may have opened the door to private industry, but a host of problems remained.\textsuperscript{51}

In the aftermath of the Challenger incident, President Reagan issued a strong directive which severely limited commercial access to the government space launch systems.\textsuperscript{52} The President declared that "[c]ommercial and foreign payloads will not be launched on government owned or operated ELV systems except for national security or foreign policy reasons."\textsuperscript{53} In addition, commercial projects could use the Shuttle "only where those payloads must be man-tended, require the unique capabilities of the [Shuttle], or . . . [when needed] for national security or foreign policy purposes."\textsuperscript{54}

With the loss of the Challenger from the four orbiter fleet, the U.S. space program reevaluated its position in the commercial market and proposed commercial ELVs as an alternative to the Shuttle.\textsuperscript{55} For over thirty years

\textsuperscript{49} Leonard Sloane, \textit{The Shuttle Explosion: Cost of Insurance In Space May Rise}, N.Y. TIMES, Jan. 29, 1986, at A10. The Challenger tragedy dramatically rocked the space insurance industry, but mishaps with two Titan 34D's, two Arianes, a Delta, and an Atlas/Centaur in the same period also contributed to skyrocketing premiums. Heydon, \textit{supra} note 29, at 140.

\textsuperscript{50} See Sanger, \textit{supra} note 46, at A19.

\textsuperscript{51} See, e.g., infra notes 149-160 and accompanying text. "The nation faced an acute shortage of launch capacity, created by a policy that had fostered reliance on the now-grounded Shuttle fleet, and exacerbated by a virtual absence of commercial launch providers." Martin Marietta Memorandum, \textit{supra} note 3, at 9.

\textsuperscript{52} Yelton, \textit{supra} note 18, at 119 (citing Presidential Directive on National Space Policy Fact Sheet (Feb. 11, 1988) [hereinafter Reagan Directive]).

\textsuperscript{53} Id.

\textsuperscript{54} Id.

\textsuperscript{55} Id.
NASA worked to perfect the design of ELVs, which are cheaper and less complex than the Shuttle.\textsuperscript{56} ELVs offer a high reliability rate, proven by thousands of commercial and military launches.\textsuperscript{57} The technology of ELVs was within reach of the private sector, but questions regarding liability and insurance continued to plague industry growth.\textsuperscript{58}

E. INSURING THE NEW SPACE ENTREPRENEUR

While the space launch industry experienced dramatic changes in the late 70s and 80s, the space insurance business tried to keep pace.\textsuperscript{59} Government space endeavors typically rely on self-insurance by assuming the high risks of a space launch.\textsuperscript{60} The U.S. government often chooses to absorb any losses arising under the Federal Tort Claims Act\textsuperscript{61} or under one of the various international treaties promulgated by the United Nations and ratified by the Senate.\textsuperscript{62} The emergence of the severely underfunded space entrepreneur, however, created a necessity for space insurance.\textsuperscript{63} Space operations are extremely costly, and private enterprise is neither willing nor capable of bearing the cost of losses resulting from a space launch mishap.\textsuperscript{64} As the private space launch industry grew, the space insurance industry also grew to meet the

\textsuperscript{56} Irene Atney-Yurdin, Insuring Third Party Liability for Commercial Outer Space Enterprises, 3 INT'L PROP. INV. J. 325, 326 (1987).

\textsuperscript{57} Id. at 326-27.

\textsuperscript{58} REPORT OF THE SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION ON THE COMMERCIAL SPACE LAUNCH ACT AMENDMENTS OF 1988, S. DOC. No. 593, 100th Cong., 2d Sess. 4-6 (1988) [hereinafter Senate Report].

\textsuperscript{59} See Johnson, supra note 21, at 248-53 (discussing the development of satellite insurance coverage).

\textsuperscript{60} Id. at 247.


\textsuperscript{62} See infra part III.B.

\textsuperscript{63} Johnson, supra note 21, at 247.

\textsuperscript{64} Over a span of 21 months during 1984 and 1985, space launch and in-orbit losses involved seven satellites with combined insured values of approximately $600 million. Satellite Insurance and Space Commercialization: Hearings Before the Senate
escalating need for financial protection.65

Private companies require insurance to cover third-party losses resulting from launch activities.66 Under the various international treaties, third-party liability attaches to the launching state.67 For this reason, the United States traditionally compels private commercial enterprises to indemnify the government from potential third-party claims.68 As an example, a typical NASA launch agreement requires a user to obtain a certain level of third-party liability insurance.69

Satellite owners also require insurance to cover property losses.70 Property insurance for satellites developed in discrete steps with each new type of insurance covering more aspects of the life of the satellite. The first satellite insurance policy, written in 1965 for Communications Satellite Corporation (COMSAT),71 covered damage only to the satellite prior to liftoff.72 COMSAT purchased an expanded insurance policy in 1969 for its Intelsat III satellites to cover any losses incurred within forty-five days following the launch.73 In 1975 RCA purchased the

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66 Johnson, supra note 21, at 253.
70 Johnson, supra note 21, at 248.
71 COMSAT is a quasi-private organization authorized to "plan, initiate, construct, own, manage and operate . . . a commercial communications satellite system." 47 U.S.C. § 735(a)(1) (1988). COMSAT operates for profit, but the President appointed the incorporators and three of the 15 directors. Id. §§ 731-733.
72 Margo, supra note 65, at 556.
73 Id. at 556 n.4. The policy insured the loss of one satellite out of a series of five, with a one satellite deductible. The definition of loss in satellite coverage is crucial and typically involves physical damage and failure to achieve a specifically defined orbital injection. Id.
first satellite life insurance policy to cover one of its SATCOM satellites for a period of three years, with a possibility of renewal. The satellite insurance companies continue to offer more comprehensive policies, but the soaring cost of this insurance threatens future commercial developments in space.

III. WHO'S TO BLAME?

The liability of commercial space launchers for customers' property losses involves several competing theories of recovery. Following traditional tort law, a commercial launch company may be strictly liable for property loss, since a space launch may constitute an abnormally dangerous activity. On the other hand, international treaty obligations suggest an approach to liability that applies a negligence standard to commercial launch companies. In contrast, governmental space launch activities frequently limit recovery to the specific provisions in the launch services contract. Finally, public policy suggests additional limitations on the liability exposure of the fledgling commercial launch industry.

A. STRICTLY TORTS

A person is strictly liable for damage caused by a thing or activity that is unduly dangerous, considering the inappropriateness of the thing or activity in the immediate surroundings. To date, no American court has applied this doctrine of strict liability espoused in Rylands v. Fletcher to the carriage of goods into outer space. Several decisions, however, imposed strict liability on persons conducting ground tests of rocket motors and test firings of rockets

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74 Johnson, supra note 21, at 251-52 n.36.
75 Id. at 267-68.
76 See infra part III.A.
77 See infra part III.B.
78 See infra part III.D.
79 See infra part IV.C. for a discussion of the public policy to promote the commercial space launch industry.
within the atmosphere. In the 1930's, the developing airline industry limited strict liability for abnormally dangerous activities to damage to third-parties and property on the ground. Even today, airplane operators are not strictly liable for harm caused to passengers and goods on the aircraft. By analogy, and relying solely on common law tort principles, commercial space launchers are not strictly liable for damage to or loss of a customer's payload.

B. NEGLIGENCE THROUGH INTERNATIONAL TREATIES

Beginning with the launch of the Soviet satellite Sputnik on October 4, 1957, the international community recognized the need for laws governing activities in outer space. To achieve this, the United Nations formed the Committee on the Peaceful Uses of Outer Space (COPUOS) in 1959 to draft and adopt treaties governing the use of space. As a permanent body of the United Nations, COPUOS promulgates major space treaties, the most recent being the Agreement Governing the Activities of the States on the Moon and Other Celestial Bodies (Moon Agreement). Each successive offering of

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82 See Restatement of Torts § 520 cmt. b (1938).

83 A comment to the more recent Restatement (Second) of Torts states:

An operator or owner of an aircraft is subject to strict liability under this Section only for physical harm to land, or to persons or chattels on the ground. He is not subject to liability under this Section to persons themselves participating in aviation, such as the crew or passengers of a falling plane, or the owner of property on it or to persons on another plane which was struck by the defendant's plane. Different tort rules govern his liabilities to them.

Restatement (Second) of Torts § 520A cmt. e (1976).

84 Deem, supra note 81, at 354.


87 Agreement Governing the Activities of the States on the Moon and Other
COPUOS attracts fewer ratifying countries, and the United States probably will never ratify the Moon Agreement because of the chilling effect on commercial exploitation of space resources.  

The earlier and widely accepted treaties, however, still play an important role in establishing international liability for space launch mishaps.

The Outer Space Treaty attaches international responsibility for national activities in space, whether governmental or nongovernmental. The Treaty contemplates private space activities and requires the states to assume full responsibility, regardless of their exercise of control over these activities. The Treaty, however, fails to specify a standard to determine the responsibility of a launching state or a procedure to compensate the aggrieved party for damages.

The Liability Convention defines more clearly the responsibility of the launching state arising from Article VII of the Outer Space Treaty and outlines a specific procedure to compensate injured parties. Under the Convention, individuals have no standing to bring claims against foreign governments, but must rely on their governments to pursue relief. The Convention defines a launching state as one that "launches or procures the launching of a space object" or one "from whose territory or facility a space object is launched." A launching state is abso-

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88 Dula, supra note 17, at 177.
89 See Hosenball Treaties, supra note 85, at 150-31 (providing a brief synopsis of existing space treaties and the present status of acceptance by countries).
91 Id. art. VI-VII, 18 U.S.T. at 2415, 610 U.N.T.S. at 209.
92 Id.
lutenly liable for damages caused by its space object on the surface of the Earth or to an aircraft in flight. In all other cases, the liability is based on fault. This two-tier standard of liability established in the Convention suggests negligence as one possible theory of recovery for losses to a customer's payload caused by a commercial space launcher. If the damage from an American launch occurs in the United States, then the Liability Convention does not apply, and the injured party must find a remedy in traditional tort law or, if the defendant is a government agency, under the Federal Tort Claims Act.

Actual recovery under the provisions of the Liability Convention for third-party claims is very rare. From the launch of Sputnik in 1957 to 1984, the space nations have placed over 17,000 objects into Earth orbit. All orbiting objects eventually fall back to earth. Normally, this space debris burns up on reentry with some notable exceptions. For example, in January 1975, the second stage of an expended Saturn V rocket accidentally splashed down in the Atlantic Ocean near the Azores. Similarly, the remains of the eighty ton Skylab littered the Indian Ocean and certain remote sections of western Australia. The Soviet Cosmos 954 satellite crash in Canada, however, is the only incident involving liability payments for damage to persons or property caused by a falling space object.

95 Id. art. II, 24 U.S.T. at 2392, 961 U.N.T.S. at 189.
96 Id. art. III, 24 U.S.T. at 2392, 961 U.N.T.S. at 190.
97 Deem, supra note 81, at 355.
99 Esposito, supra note 36, at 162.
101 A litigious individual filed suit in a district court in Ohio to enjoin the return of Skylab. S. Neil Hosenball, NASA and the Practice of Space Law, 19 J. SPACE L. 1, 6 (1985).
102 Canada: Claim Against the Union of Soviet Socialist Republics for Damage Caused by Soviet Cosmos 954, reprinted in 18 I.L.M. 899 (1979) [hereinafter Canadian Claim]; see Joseph A. Burke, Convention on International Liability for Damage
A portion of the five ton surveillance satellite containing an on-board nuclear power source survived reentry and scattered debris in Canada's remote Northwest Territories. The Soviets paid three million Canadian dollars in full settlement of the claim. The Cosmos 954 incident suggests the remote possibility of damage to third-parties resulting from launch activities, but the more likely, and cumulatively more devastating, financial losses are to the payload itself.

COPUOS also ratified other space treaties with only minor impact on commercial launch operations. The Registration Convention created a national registry of space objects. The Rescue Agreement implements Article V of the Outer Space Treaty and details the procedures and obligations in the event an astronaut or space object lands outside the territory of the launching state. In addition, the Moon Agreement prohibits a territorial claim of the Moon by any nation, provides free and open access to the Moon by all nations, and creates an organizational framework for regulating the development of space resources. The International Telecommunications Convention and the Agreement Establishing the International Telecommunications Satellite Organization


103 Canadian Claim, supra note 102, at 902-03.
104 Canada's Claim Against the U.S.S.R. Arising Out of the Cosmos 954 Incident. The Claim's Settlement, Communiqué No. 27, Department of External Affairs, Apr. 2, 1981.
105 Intelsat sought $400 million in damages from Martin Marietta for the loss of a single satellite. Hofmann, supra note 1, at 3; Martin Marietta Memorandum, supra note 3, at 15.
108 Moon Agreement, supra note 87, art. XI, para. 2, 18 I.L.M. at 1438.
109 Id. art. VI, para. 1, 18 I.L.M. at 1436.
110 Id. art. XI, 18 I.L.M. at 1438.
also affect commercial activities in space, but do not address launcher liability.

The collection of international agreements executed by the United States affects private corporations involved in launch activities in three ways. First, the treaties adopted by COPUOS and ratified by the United States are considered self-executing and become the positive law of the country. Second, the United States compels corporations to comply with international law through NASA launch agreements or through the licensing procedures of the CSLA. For example, the United States imposes substantial restrictions regarding indemnification and insurance upon corporate space activities in response to the liability established by the Outer Space Treaty and the Liability Convention. Finally, the two-tier approach in the Liability Convention establishes negligence as the leading theory of recovery for losses to customer property caused by the launching company.

C. THE GOVERNMENT STEPS IN

Under the Liability Convention, commercial launcher liability for customer losses lies in negligence, but section 308 of the National Aeronautics and Space Administration Authorization Act (NASAct) may also impact the liability of launching activities. Congress passed section 308 of the NASAct in 1980 to give NASA the authority to

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114 U.S. Const. art. VI (the Supremacy Clause); *see* Whitney v. Robertson, 124 U.S. 190, 194 (1888) ("By the Constitution a treaty is placed on the same footing, and made of like obligation, with an act of legislation.").
insure its users and provide indemnity for third-party claims in excess of the insurance limits.\textsuperscript{119} Section 308, however, permits NASA to limit indemnification "to claims resulting from other than the actual negligence or willful misconduct of the user."\textsuperscript{120} NASA does not act as an insurer, but as an agent purchasing insurance when available and providing this coverage to users.\textsuperscript{121} This arrangement allows the user to purchase insurance at a reasonable cost to cover most losses, while the United States receives indemnification for all but the most serious incidents.\textsuperscript{122} Section 308 therefore encourages corporations to enter the industry, but also allows the United States to comply with its international obligations.\textsuperscript{123} Congress eventually adopted this government indemnification concept of section 308 in the Amendments to the CSLA.\textsuperscript{124}

\section*{D. The Contract Is King}

In addition to the insurance requirements under section 308 of the NASAct, the government often mandates the signing of launch service or launch facility agreements.\textsuperscript{125} These agreements shift liability established by international treaties to the private commercial enterprise.

Public policy against adhesion contracts often prohibits a party from limiting its liability.\textsuperscript{126} Courts define a con-

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{119} \textit{Id.} § 308 (codified at 42 U.S.C. § 2458b (1988)).
\item \textsuperscript{120} NASAct, \textit{supra} note 118, § 308(b).
\item \textsuperscript{121} Johnson, \textit{supra} note 21, at 261.
\item \textsuperscript{122} \textit{Id.} at 261-62.
\item \textsuperscript{123} \textit{Id.} at 253, 261-62.
\item \textsuperscript{124} 49 U.S.C. app. § 2615(b)(1) (1988).
\item \textsuperscript{125} Both NASA and the Air Force employ model agreements to assure international obligations are met and to allow further risk allocation. Furthermore, governmental agencies often inject provisions into these contracts that support certain public policies. See, e.g., Appalachian Ins. Co. v. McDonnell Douglas Corp., 262 Cal. Rptr. 716, 723 n.4 (Cal. Ct. App. 1989) (a launch services agreement providing that the parties must agree to a no-fault, no subrogation, interparty waiver of liability to "contribute to the common goal of meaningful exploration of outer space.").
\item \textsuperscript{126} Vera Bolgar, \textit{The Contract of Adhesion: A Comparison of Theory and Practice}, 20 \textit{Am. J. Comp. L.} 53, 54-55 (1972).
\end{itemize}
\end{footnotesize}
tract of adhesion as a form contract imposed by a party with superior bargaining power over a weaker party,\textsuperscript{127} which generally arise in consumer, rather than commercial, settings.\textsuperscript{128} Considering the amount of money involved and the sophistication of parties, a commercial launch service agreement normally does not constitute an adhesion contract.\textsuperscript{129}

Since parties in the commercial space launch arena freely allocate their liability through contracts, it is crucial to clearly define the participants, the types of risks involved, and the means to allocate those risks. The participants include: (1) the launch service provider, (2) the customer or owner of the payload to be launched, (3) the launch facility provider, and (4) the various contractors and subcontractors.\textsuperscript{130} The participants face both a risk to their own property and employees and a risk of legal liability for loss or injury to other participants or third-parties.\textsuperscript{131}

The allocation of these risks appears primarily in two agreements. A launch facility agreement often requires the launch service provider to indemnify the government for property damage and third-party liability in return for the use of the government-owned and operated launch facility.\textsuperscript{132} In contrast, a launch service agreement embodies all of the rights and obligations between the launch provider and the customer, including inter-participant waivers of claims.\textsuperscript{133}

NASA adopted a similar launch service agreement for commercial users at Cape Canaveral, Florida and Wallops Island, Virginia,\textsuperscript{134} while the Air Force drafted a model

\textsuperscript{127} Id.
\textsuperscript{129} Appalachian, 262 Cal. Rptr. at 791.
\textsuperscript{131} Id.
\textsuperscript{132} Id. at 24.
\textsuperscript{133} Id. at 23-24.
\textsuperscript{134} Kissick, supra note 69, at 32. Although NASA creates a new contract for each
contract for users of the Patrick and Vandenberg Air Force bases. A typical NASA launch service agreement requires all parties, including the U.S. government, to execute mutual covenants not to sue. All participants in the launch must hold each other harmless for any damages to the payload, launch vehicle, or launch facilities. NASA requires this cross-waiver of liability for several policy reasons. First, NASA hopes to encourage use of the Shuttle by eliminating the user’s concerns over massive liability claims arising from damage to the Shuttle or other payloads. Second, NASA realizes the difficulty to the insurance market in covering space ventures without these cross-waiver provisions. Finally, NASA believes mutual covenants encourage participation of small scientific users, such as small university researchers, who would otherwise be unable to carry the liability insurance needed to cover the risk of damage on launch. In amending the CSLA in 1988, Congress adopted many of customer, a typical launch service agreement is NASA’s Martin Marietta Commercial Titan, Inc. contract of Oct. 1988. For a good discussion of this contract see id. at 32-42. The Appalachian court discusses in detail the exculpatory clauses in a NASA launch services agreement with Western Union. Appalachian, 262 Cal. Rptr. at 720-25. The Hughes case also discusses the unique contractual relationship between a customer and NASA. Hughes Communications Galaxy, Inc. v. United States, 26 Cl. Ct. 123, 132-46 (1992).

Kissick, supra note 69, at 32; Air Force’s Model Expendable Launch Vehicle Commercialization Agreement, Revision Two, July 1989 [hereinafter Air Force Model Agreement].


Id.

Johnson, supra note 21, at 256. The Shuttle’s capability to carry several satellites concerned customers since they then had to consider the potential liability for causing damage to other expensive payloads. Appalachian, 262 Cal. Rptr. at 724. NASA, therefore, required all launch participants to sign a no-fault, no subrogation interparty waiver of liability. Id. at 724 n.6 (quoting the full text of the interparty waiver of liability in the NASA/Western Union launch services agreement).

See Mossinghoff, supra note 68, at 123.


Mossinghoff, supra note 68, at 123. Many small scientific payloads could fly on the Shuttle for $10,000, but additional insurance costs in the absence of cross-waiver provisions may exceed $50,000. See Robert A. Tepfer, Allocation of Tort Liability Risks in the Space Shuttle Program, 23 A.F. L. REV. 208, 213 (1982).
the provisions in a typical NASA launch service agreement, including the cross-waivers of liability.\textsuperscript{142}

IV. THE COMMERCIAL SPACE LAUNCH ACT

A. A RACE TO PRIVATIZATION

NASA’s substantial efforts to reduce the liability exposure of its customers through the launch service agreement did not apply to purely private launches.\textsuperscript{143} As a result, private industry still faced two major hurdles in the race to privatization. The first hurdle, illustrated by the difficulties surrounding the Conestoga I launch, concerned the confusing state of piecemeal regulation imposed on purely private launch activities.\textsuperscript{144} In 1984 Congress responded with the original CSLA to consolidate all licensing authority in a single regulatory body.\textsuperscript{145} The second hurdle, aggravated greatly by the Challenger disaster and other commercial rocket launch failures, was skyrocketing space insurance rates and continued concern for the exposure of private industry to potentially massive liability.\textsuperscript{146} Adopting many of NASA’s ideas, Congress acted quickly by amending the CSLA in 1988 to include limits on required insurance, government indemnification for large claims, and mandatory cross-waivers of liability.\textsuperscript{147}

B. HURDLE ONE AND THE ORIGINAL ACT

A collection of vague international treaties and a non-standard set of government launch contracts controlled the duties and obligations of parties in launches before

\textsuperscript{143} A launch provider, operating a purely private launch, drafts its own launch service agreement.
\textsuperscript{144} See infra part IV.B. and accompanying text for the regulatory nightmare of the Conestoga I.
\textsuperscript{146} Andrew Ritholz, \textit{International and Domestic Regulation of Private Launching Ventures}, 20 \textit{Stan. J. Int’l L.} 135, 172 (1984). “[E]xorbitant insurance requirements, severe government review of price and service offerings, standards rejecting relatively high risk practices, or stringent disclosure of results requirements may lead some entrepreneurs to abstain from participation.” \textit{Id.}
the Conestoga I. A purely private activity would be subject to the same international obligations, together with the regulations of a host of agencies, having only indirect control on launch operations.\textsuperscript{148} Space Services, Inc., in a valiant effort to abide by all treaty obligations and agency regulations, waded through a regulatory morass before launching the Conestoga I in 1982.\textsuperscript{149}

The players in the Conestoga I game read like a laundry list of major governmental agencies. The Department of State, in addition to overseeing the government's obligations under several international treaties, exercised its authority under the Arms Export Control Act\textsuperscript{150} by requiring a permit for the export of rockets, spacecraft, space electronics, and guidance equipment.\textsuperscript{151} DOT maintained control of airspace over 14,500 feet and therefore required an exemption for rocket travel pursuant to the Federal Aviation Act of 1958.\textsuperscript{152} DOT also required launch participants to provide detailed information concerning the launch within twenty-four to forty-eight hours of liftoff.\textsuperscript{153} The U.S. Coast Guard, exercising authority under the Ports and Waterways Safety Act,\textsuperscript{154} kept vessels away from the launch site and trajectory and oversaw the transportation of the rocket from the Texas mainland to Matagorda Island.\textsuperscript{155} The Conestoga I launch also required temporary licenses to operate the telemetry, tracking, and self-destruct systems over certain frequencies allocated by the FCC under the Federal Communications Act of 1934.\textsuperscript{156} In addition, NASA, the Department of Commerce, the Department of Defense, the Air Force, the


\textsuperscript{149} Yelton, supra note 18, at 119-25; Webber, supra note 148, at 9-22.


\textsuperscript{155} Id. §§ 1223(c), 1225.

\textsuperscript{156} Yelton, supra note 18, at 123 (citing 47 U.S.C. §§ 151-609 (1988)).
Navy, the North American Aerospace Defense Command, the IRS, the CIA, and even the U.S. Treasury justified some measure of control over the Conestoga I launch.\textsuperscript{157}

All told, the regulatory approvals necessary to launch the Conestoga I concerned eighteen federal agencies and twenty-two different statutes or regulatory guidelines.\textsuperscript{158} The approval process took six months to complete at a cost of $250,000.\textsuperscript{159} The government imposed this "unnecessary and potentially crippling regulatory barrier" for a simple test flight carrying a water payload.\textsuperscript{160} Accordingly, the Secretary of Transportation urged Congress and the President to "streamline and facilitate all clearance requirements, eliminate any unnecessary and overlapping regulations and take steps to promote and encourage what promises to be a multi-billion dollar space launch business."\textsuperscript{161}

The CSLA codifies the major policies of Executive Order No. 12,465,\textsuperscript{162} which designated DOT as the lead agency for commercial space launch regulation and implemented a one-stop licensing procedure.\textsuperscript{163} The CSLA attempts to relieve the problems created by the brick wall of "overlapping inter-agency jurisdiction" found in the Conestoga I launch.\textsuperscript{164} The Executive Order empowered DOT to act as the center for documentation of license applications, but did not empower DOT to issue licenses.\textsuperscript{165} Congress passed the CSLA to insure that the clear policy

\begin{itemize}
\item \textsuperscript{157} \textit{Id.} at 123-25.
\item \textsuperscript{158} \textit{Senate CSLA Hearings, supra} note 39, at 66.
\item \textsuperscript{159} \textit{Id.}
\item \textsuperscript{160} Webber, \textit{supra} note 148, at 26.
\item \textsuperscript{161} Statement by Elizabeth Dole, Secretary of Transportation, Expendable Launch Vehicle Order Ceremony, The White House (Feb. 24, 1984).
\item \textsuperscript{163} \textit{Id.;} 49 U.S.C. app. §§ 2601-2623 (1988). The success of DOT in deregulating other modes of transportation may have weighed heavily in the President's decision. Ross, \textit{The Department of Transportation's New Role in Commercializing Space Transportation,} 1 \textit{ABA Forum on Air and Space Law} 5, 5 (1984).
\item \textsuperscript{164} Yelton, \textit{supra} note 18, at 137.
\end{itemize}
of the Executive Order would continue across administra-
tions and to affirmatively grant exclusive authority to the
Secretary of Transportation to issue commercial launch
licenses.\textsuperscript{166}

The CSLA applies to both commercial launches on gov-
ernment-operated systems and commercial launches, like
the Conestoga I, in which the government does not par-
ticipate.\textsuperscript{167} In addition, the CSLA eliminates the question
of whether a regulatory agency can control the activities
of the space launch industry based solely on a collection
of international treaties and agreements.\textsuperscript{168} In legislating
the CSLA, Congress still gave "serious consideration to
the extent of U.S. jurisdiction and the extent of U.S. liabil-
ity for launch-related activities pursuant to international
law and international obligations."\textsuperscript{169} The purpose of the
CSLA is:

(1) to promote economic growth and entrepreneurial ac-
tivity through utilization of the space environment for
peaceful purposes;
(2) to encourage the United States private sector to pro-
vide launch vehicles and associated launch services by sim-
plifying and expediting the issuance and transfer of
commercial launch licenses and by facilitating and encour-
aging the utilization of Government-developed space
technology; and
(3) to designate an executive department to oversee and
coordinate the conduct of commercial launch operations,
to issue and transfer commercial launch licenses authoriz-
ing such activities, and to protect public health and safety,
safety of property, and the national security interests and
the foreign policy interests of the United States.\textsuperscript{170}

Pursuant to the power to "encourage, facilitate, and

\textsuperscript{167} Id. § 2605(a). The CSLA does not, however, apply to launches of govern-
ment payloads on government systems. Id. § 2620(c).
\textsuperscript{168} Esposito, supra note 36, at 161.
\textsuperscript{169} S. REP. No. 656, 98th Cong., 2d Sess. 2 (1984), reprinted in 1984
promote commercial space launches by the private sector,” the Secretary of Transportation established the Office of Commercial Space Transportation (OCST). OCST “exercise[s] the Secretary’s authority to license and otherwise regulate commercial space launch activities and . . . discharge[s] the Secretary’s responsibility to encourage, facilitate and promote commercial space launches by the United States private sector.” This new governing body publishes regulations establishing procedures to review and authorize commercial launch activities. OCST licensing contains two separate procedures. First, the Safety Review concerns the safety and reliability issues of the applicant’s vehicle and launch facilities. Second, the Mission Review addresses the foreign policy and national security interests impacted by each launch.

OCST actively pursues other work to insure the success of the commercial launch industry. For example, the primary function of OCST is to license and regulate commercial launches. Under the auspices of DOT, however, the agency also conducts safety research and oversees possible development of privately owned spaceports.

The congressional findings in the CSLA declare that the private sector is capable of providing private satellite launch services, which would complement the services available from the government. To this end, the

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171 Id. § 2604(a)(1).
172 14 C.F.R. § 401.1 (1992). OCST began operation on November 16, 1983, but the Secretary of Transportation did not officially establish the agency until February 24, 1984. Myers, supra note 22, at 43. One commentator concludes that the establishment of the OCST “is the most appropriate method of streamlining the regulatory process.” Webber, supra note 148, at 47.
174 Id.
175 Id. § 411.5.
176 Id. § 411.7.
177 Id. § 411.1.
United States encourages development of the commercial launch industry and commits to regulate these activities only to comply with obligations under international treaties and “to protect the public health and safety, safety of property, and national security interests and foreign policy interests of the United States.”

Under the CSLA, the Secretary of Transportation encourages, facilitates, and promotes the commercial launch industry, consults with other agencies over the licensing requirements for commercial space ventures and maintains a system of licensing procedure that is fair and equitable to all applicants. The Secretary can issue, transfer, modify, suspend, and revoke licenses. In addition, the Secretary may prescribe new requirements, waive applicable laws and regulations on a case-by-case basis, and issue any other regulations to carry out the purposes of the CSLA. Furthermore, to enforce the provisions of the CSLA, the Secretary can investigate and seize any objects, records, or reports subject to the CSLA, require the presence of observers at any production facilities, assembly sites, launch sites, or launch facilities and assess and enforce civil penalties for violations of the CSLA.

The CSLA also encourages, through lease, sale, or other transaction, the private use of government launch facilities and services. The price for the use of this

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822 JOURNAL OF AIR LAW AND COMMERCE [58]
property is the "fair market value." In cases other than
sale or transaction in lieu of sale, the responsible govern-
ment agency can only charge for direct costs," which in-
clude wear and tear on property and salaries of U.S.
civilian and contractor personnel.

All launches under the jurisdiction of the CSLA must
obtain a launch license. Generally, the CSLA requires
no other license, but the Secretary of Commerce and
the FCC retain additional licensing authority over certain
satellites. The applicant must properly identify the
payload and obtain the necessary payload license before
receiving launch authorization. The Secretary of
Transportation prescribes all application procedures
and provides notice for delays in processing applica-
tions. Whenever the Secretary suspends, revokes, or
modifies a license, the affected party has a right to no-
tice, hearing, determination on the record, and ad-
ministrative and judicial reviews.

Finally, the CSLA's jurisdiction flows directly from the
international responsibility established in the Outer Space
Treaty and the Liability Convention. In signing these
treaties, the federal government is ultimately responsible
for damage to property and harm to citizens of other
countries and, therefore, has a duty to insure the safety
of all space launch ventures. Consequently, the CSLA re-
quires that the licensee have liability insurance "at least in
such an amount as is considered by the Secretary to be

\[\footnotesize\text{\cite{Id. § 2614(b).}}\]
\[\footnotesize\text{\cite{Id. § 2605(a)(1).}}\]
\[\footnotesize\text{\cite{Id. § 2605(c)(1).}}\]
\[\footnotesize\text{\cite{Id. §§ 2605(b)(1), (c)(2).}}\]
\[\footnotesize\text{\cite{Id. § 2608(a).}}\]
\[\footnotesize\text{\cite{Id. § 2608(b).}}\]
\[\footnotesize\text{\cite{Id. §§ 2608(b), 2609(d).}}\]
\[\footnotesize\text{\cite{Id. § 2611(a).}}\]
\[\footnotesize\text{\cite{Id.}}\]
\[\footnotesize\text{\cite{Id. § 2611(b).}}\]
\[\footnotesize\text{\cite{Id. § 2621(b).}}\]
\[\footnotesize\text{\cite{Id. § 2620(d).}}\]

\[\footnotesize\text{Outer Space Treaty, supra note 90, art. VII.}\]
necessary for such launch or operation, considering the international obligations of the United States." The Secretary prescribes the amount of insurance required after consulting with the Attorney General and appropriate agencies. The CSLA does not establish limits on liability insurance, nor does it address government indemnification provisions like those found in a typical NASA launch service agreement. Moreover, the CSLA does not require specific risk allocation agreements between the parties.

Many of the details concerning the licensing process for commercial space launches are left for agency regulation. For example, OCST is authorized to promulgate a detailed multilevel certification process to insure a high degree of safety from all participants in a launch. Unfortunately, the original CSLA provisions regarding risk allocation and insurance are arguably too indefinite and unworkable.

C. Hurdle Two and the Amendments

The passage of the CSLA in 1984 successfully scaled the first hurdle to privatizing the launch industry. Nonetheless, the space insurance crisis and the deterring effect of runaway liability still presented a formidable second hurdle. Following the Challenger disaster and several other launch failures, the private launch industry faced near extinction despite the growing demand for launch services. Therefore, in 1988 Congress amended the

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210 Id. § 2615(a).
211 Ritholz, supra note 146, at 152.
212 Some suggest a certification process similar to the existing process for aircraft. Id. at 153; see also 49 U.S.C. app. §§ 1423-24 (1988) (aircraft certification legislation).
213 See Yelton, supra note 18, at 134 (describing insurance and risk-sharing provisions of the CSLA).
214 See Martin Marietta Memorandum, supra note 3, at 10-11 (describing "[t]he magnitude of the liability and insurance problems that had prevented the growth of the American commercial launch industry").
215 See supra part II.D.
CSLA, relieving many of the problems related to space insurance and liability.\textsuperscript{216}

Limitation of liability for developing industries is not a novel idea. In 1929 the Warsaw Convention limited international air carriers’ liability for damage to passengers and luggage,\textsuperscript{217} and the Rome Convention later capped responsibility for damage caused by aircraft to property on the ground or to third-parties.\textsuperscript{218} In 1978 the Supreme Court upheld legislation\textsuperscript{219} designed to encourage the nuclear power industry by limiting the accident liability of utility companies.\textsuperscript{220} Similarly, government efforts to temper the anxiety of massive space liability claims would encourage development of private space launch ventures.\textsuperscript{221}

In the 1920s and 30s, the young air transportation industry received a shot in the arm from air mail subsidies, technology transfers from military programs, and subsidies for the military reserve air transport fleet.\textsuperscript{222} When the U.S. Post Office decided to fly air mail, the government created a new market for the young aircraft industry and encouraged development of the legendary Douglas Aircraft Company DC-3.\textsuperscript{223} More recently, the government established an aviation insurance fund to cover uninsurable risks associated with war, hijacking, and other

\begin{itemize}
  \item \textsuperscript{216} 49 U.S.C. app. §§ 2601-2623 (1988); Martin Marietta Memorandum, \textit{supra} note 3, at 11 (Congress takes action to “kick start” the heavily burdened commercial space launch industry).
  \item \textsuperscript{218} The Convention on Damage Caused by Foreign Aircraft to Third Parties on the Surface, Oct. 7, 1952, 310 U.N.T.S. 181.
  \item \textsuperscript{220} Duke Power Co. v. Carolina Env’t Study, 438 U.S. 59, 84 (1978) (upholding legislation found to be rationally related to encouraging private development of the nuclear power industry).
  \item \textsuperscript{221} Dula, \textit{supra} note 17, at 186.
  \item \textsuperscript{222} \textit{Id.}
  \item \textsuperscript{223} Hudgins, \textit{supra} note 31.
\end{itemize}
terrorist activities. Similarly, a combined spaceflight insurance fund could offer protection to private industries through substantial risk pooling.

In its infancy, the nuclear industry encountered the same cost-prohibitive insurance premiums that the commercial space launch industry now faces. The Atomic Energy Act of 1954 ended the government monopoly in the nuclear industry and left the door open for private enterprise. Utility companies refused to enter such a risky field, so Congress passed the Price-Anderson Act to: (1) protect the public by establishing a fund to cover accident claims and (2) protect the new commercial nuclear industry by limiting potentially massive liability. In particular, this legislation provides government indemnification and liability limitations for the nuclear power industry. The Price-Anderson Act also requires licensees to purchase insurance in an amount established by the Nuclear Regulatory Commission. In turn, the Commission indemnifies a licensee up to $500 million for each nuclear accident. The CSLA Amendments contain similar measures demonstrating a strong government policy to encourage the burgeoning commercial space industry through legislation.

The U.S. Senate Subcommittee on Science, Technology and Space held hearings on November 7, 1985, to appraise the status of insurance issues hindering development of the commercial space industry. During 1984 and 1985, space launch and in-orbit losses of seven major

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225 Dula, supra note 17, at 186.
230 Id. § 2210(a).
231 Id. § 2210(e).
233 Senate Space Insurance Hearings, supra note 64, at 1.
satellites generated combined insurance claims in excess of $600 million.\textsuperscript{234} The industry also experienced a major setback in 1984 with the loss of two satellites on the Shuttle.\textsuperscript{235} Since 1978, the accumulative loss ratio degraded to approximately $840 million in losses compared to a mere $430 million collected in premiums.\textsuperscript{236} As a result, satellite insurance capacity of $250-300 million per launch in 1983, at a premium rate of five to seven percent of satellite cost, decreased to $50-75 million in 1987, at premium rate in excess of twenty to twenty-five percent of satellite cost.\textsuperscript{237} For a large commercial space venture, the financial feasibility of the mission severely diminishes when insurance costs exceed 2.5 percent of the expected gross revenues.\textsuperscript{238} In such a case, businesses may opt for competing alternative technology on the Earth.\textsuperscript{239}

In September 1987, the House Committee on Science, Space and Technology began hearings to assess the health of the launch industry following the Challenger disaster.\textsuperscript{240} For two years, not a single American satellite customer had scheduled a launch date with an American launch provider.\textsuperscript{241} Prospective launch providers ex-

\begin{itemize}
  \item \textsuperscript{234} Id. at 50 (statement of Daniel E. Cassidy, Vice President, Marsh & McLennan Aviation and Aerospace).
  \item \textsuperscript{235} One satellite for the Indonesian government and one for Western Union failed to reach their desired orbits due to a failure in each spacecraft's Payload Assist Module (PAM). Natalie Angier, \textit{Rounding Up the Runaways}, \textit{TIME}, Nov. 26, 1984, at 22. The incident received international attention when a later Shuttle flight attempted a daring recapture and salvage operation. \textit{Id.} For a discussion of the legal events following the loss of both telecommunication satellites, see infra, parts V.A-B.
  \item \textsuperscript{236} \textit{Senate Space Insurance Hearings}, supra note 64, at 50 (statement of Daniel E. Cassidy, Vice President Marsh & McLennan Aviation and Aerospace).
  \item \textsuperscript{237} Id.
  \item \textsuperscript{238} \textit{ECON, INC., FEDERAL GOVERNMENT PROVISION OF THIRD-PARTY LIABILITY INSURANCE TO SPACE VEHICLE USERS}, 105 (Jan. 2, 1985) (prepared for NASA under Contract No. NASW-3339).
  \item \textsuperscript{239} Id. at 98-99.
  \item \textsuperscript{240} \textit{State of the Commercial Space Launch Industry: Hearings Before the Subcomm. on Space Science and Applications of the House Comm. on Science, Space and Technology}, 100th Cong., 1st Sess. 1, 9 (1987) (statement of George A. Koopman, President, American Rocket Company) [hereinafter Koopman Statement].
  \item \textsuperscript{241} Lillian M. Trippett, \textit{Legislative Initiatives to Encourage Private Activity}, 4 J.L. & TECH. 49, 51 (1989).
\end{itemize}
pressed concern over the potential liability and the inadequate guidance regarding insurance in the CSLA. The American launch industry also faced government subsidized competition from the French, the Chinese, and the Soviet Union. The House Committee, therefore, reviewed the launching practices of the Air Force and NASA, searching for a way to help the struggling industry.

A few months prior to the House hearings, the government issued a first draft of the Air Force Model Agreement designed to regulate the private use of certain national ranges for space launches. The commercial launch industry voiced its reservations over the liability insurance and risk allocation provisions. The original agreement requires launch users to assume risk for all damages and to obtain the "aggregate maximum casualty and liability insurance available on the world market." The Air Force refused to set a specific amount of insurance required or to offer indemnity for large losses. With little aid or guidance from the U.S. government to help mitigate potentially massive losses, private industry was hesitant to invest in space enterprises under the original Air Force Model Agreement.

In response to industry's outcry for more guidance, the Air Force issued a revised model agreement in January of 1988. The new agreement requires the user to indemnify the government for any third-party claims arising

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242 Id. at 51-52.
244 Trippett, supra note 241, at 51-52.
245 Koopman Statement, supra note 240, at 9.
246 Id. at 10.
247 Id.
248 Yelton, supra note 18, at 132.
249 Koopman Statement, supra note 240, at 10.
250 For a complete text of the Model Agreement, see Commercial Space Launch Act Amendments of 1988: Hearings Before the Subcomm. on Space Science and Applications of the
from the production, marketing, and use of government facilities or services, and for any environmental incidents or related legal violations.\textsuperscript{251} In response to industry complaints, the new agreement defines "maximum available insurance" as "the amount of insurance available in the world market at a reasonable premium and on terms considered commercially reasonable for the risks involved to fund the User's responsibilities under the Agreement . . . ."\textsuperscript{252} The revised agreement, however, still lacked provisions for limitation of liability or government indemnification.

Prior to the adoption of the CSLA, NASA also developed a risk apportionment scheme for its private customers.\textsuperscript{253} A typical NASA launch service agreement requires the user to obtain the maximum available liability insurance against third-party claims at a reasonable cost, and NASA assumes responsibility for claims above the insurable limit.\textsuperscript{254} In addition, NASA encourages "no-fault, no subrogation, interparty waiver of liability" agreements to cover damage to both government property and the payload.\textsuperscript{255} These agreements require parties to bear the risk of damage or loss to their own property.\textsuperscript{256}

\textit{House Comm. on Science, Space and Technology, 100th Cong., 2d Sess. app. 2 at 227 (1988)} [hereinafter \textit{House Amendment Hearings}].

\textsuperscript{251} Id. at 232 (art. IV, § c).

\textsuperscript{252} Id. (art. IV, § b(3)).

\textsuperscript{253} See id. at 11-15 (testimony of John E. O'Brien, General Counsel, NASA).

\textsuperscript{254} Id. In a Senate hearing, however, Mr. O'Brien, General Counsel for NASA, stated that the private sector can provide the "requisite satellite insurance" and stressed that NASA is not in the insurance business. \textit{Senate Space Insurance Hearings, supra} note 64, at 4-5.

\textsuperscript{255} \textit{House Amendment Hearings, supra} note 250, at 12. The NASA waiver requires parties to:

\begin{itemize}
  \item agree to a no-fault, no subrogation, interparty waiver of liability pursuant to which each party agrees not to bring a claim against or sue the other party . . . and agrees to absorb the financial and any other consequences for Damage it incurs to its own property . . . as a result of participation in [Shuttle] Operations . . . regardless of whether such Damage arises through negligence or otherwise.
\end{itemize}

The House Committee favored the successful practice of the European space consortium, Arianespace, which borrowed the NASA provisions and made it work for a commercial enterprise. The Reagan Administration unsuccessfully lobbied for additional amendments that would protect the ELV industry through tort reform by capping pain and suffering damages at $200,000. After a heated debate that nearly killed the entire bill, Congress adopted the risk-sharing provisions used by NASA.

The CSLA required a licensee to obtain liability insurance or demonstrate financial responsibility. Under this scheme, several agencies exercised authority to set the amount of liability insurance, which created confusion in the ELV industry. The Amendments contain very particular guidelines setting the maximum insurable requirements for (1) third-party claims, (2) damage to government property, and (3) cross-claims between parties participating in the launch. Under this new legislation, the licensee must first demonstrate financial responsibility or obtain third-party liability insurance not to exceed the lesser of $500 million or the maximum liability insurance available on the world market at reasonable cost. Second, the licensee must demonstrate financial responsibility or obtain insurance to cover loss or damage to government property not to exceed the lesser of $100 million or the maximum coverage available.

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257 Trippett, supra note 241, at 52.
261 Yelton, supra note 18, at 134.
263 Id. § 2615(a)(1)(A).
at reasonable rates. Finally, each licensee must sign reciprocal waivers of claims with all participants, including the government. The Secretary of Transportation determines the maximum probable loss of a particular launch in consultation with the Administrator of NASA, the Secretary of the Air Force, and the heads of other appropriate agencies. In return for the licensee obtaining liability insurance and signing cross-waivers, the United States agrees to indemnify third-party claims in excess of the maximum probable loss, but not more than $1.5 billion.

Since the adoption of the Amendments, the DOT has actively licensed individual launches and established insurance limits. Space Services, Inc. successfully launched the Starfire rocket in March 1989 under the expedited licensing process of OCST. This first commercial launch licensed under the amended CSLA flew a payload of six scientific experiments for eight minutes over the White Sands Missile Range in New Mexico. OCST required Space Services to purchase a $10 million liability insurance policy at a cost of $30,000.

In September 1989, a McDonnell Douglas Delta rocket launched a communications satellite, marking the first completely private orbital launch under the Amendments. OCST issued minimum insurance requirements for McDonnell Douglas and later set limits for General Dynamics and Martin Marietta launches. Not until the loss of an Intelsat payload on a Martin Marietta Titan III rocket was the policy behind the waivers challenged in

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264 Id. § 2615(a)(1)(B).
265 Id. § 2615(a)(1)(C)-(D).
266 Id. § 2615(a)(1)(A).
267 Id. § 2615(b)(1).
269 Id.
270 Id.
271 Id.
V. BOTCHED LAUNCHES GO TO COURT

Few cases involving a space launch provider's liability for a failed launch ever appear in court, but recently several space law decisions shed light on the evolving law governing commercial launch companies. *Lexington Insurance Co. v. McDonnell Douglas Corp.*,274 turning on events and agreements signed before enactment of the CSLA, demonstrates the unwillingness of courts to allow contractual limitations on the tort liability of launch providers.275 A companion case, *Appalachian Insurance Co. v. McDonnell Douglas Corp.*,276 expresses a different attitude, honoring exculpatory clauses in launch service agreements involving large, sophisticated corporations contracting in a highly specialized and risky new technology.277 Finally, *Martin Marietta Corp. v. International Telecommunications Satellite Organization*,278 represents the most recent judicial treatment of the public policy announced in the Amendments.279

A. LEXINGTON INSURANCE V. MCDONNELL DOUGLAS

On February 3, 1984, the Space Shuttle Challenger carried two satellites, the Westar VI and the Palapa B-2, into low Earth orbit. Each satellite relied on a Payload Assist


275 Id. at 134. "The court held simply that plaintiffs were entitled to assert a negligence action under California law and that the risk allocation provision of Perumtel's contracts did not prevent them from doing so." Id.


277 Id. at 730-31.


279 Id. at 1333 (district court disallowing any claims for negligence or even gross negligence for customer property losses).
Module (PAM) designed to boost the telecommunication hardware into geosynchronous orbit, but both PAMs burned out prematurely, leaving the satellites inopera-
table. The owners of the two satellites, the Government of Indonesia and Western Union, submitted insurance claims for losses totalling $180 million. Several insurance companies then brought suit against McDonnell Douglas, Morton Thiokol, and Hitco for subrogation of the insurance claims.

The court honored a contractual disclaimer of liability and dismissed the Westar VI case. Western Union signed a disclaimer with McDonnell Douglas that covered any failure of the PAM and disallowed any subrogation suits by the insurers. The Palapa B-2 case survived dismissal, however, and became the first jury trial ever arising from the U.S. space program.

Since the launch occurred in February 1984, the CSLA did not govern the parties in the Palapa B-2 case. Instead, the launch agreement between the Indonesian government and NASA contained a "no fault, no subrogation interparty waiver of liability." In addition, Perumtel, Indonesia's wholly-owned communications company, bargained with Hughes Aircraft Company for a lower satellite price and expressly agreed to take title to the Palapa B-2 and assume the risk of loss. Accordingly, Perumtel purchased liability insurance in the event the Shuttle or

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280 The Palapa B-1 successfully reached geosynchronous orbit in June of 1983 using an identical PAM upper stage module.
281 Ginger, supra note 274, at 132.
282 Id.
283 Id.
285 Ginger, supra note 274, at 134.
287 Ginger, supra note 274, at 132.
288 Id.
PAM failed to deliver the Palapa B-2 to the proper geosynchronous orbit.\textsuperscript{289}

At trial, McDonnell Douglas argued that insurance companies could not recover on a negligence theory because Perumtel agreed to assume the risk of loss. McDonnell Douglas also asserted that interparty waivers of liability prohibited all parties from suing each other over losses resulting from the launch. The court concluded that the specific risk allocation provisions in Perumtel's contracts did not prevent the insurers from bringing a negligence action under California state law.\textsuperscript{290} The jury heard detailed evidence of negligent design and testing of the PAM and concluded that the defendants were not liable.\textsuperscript{291} The jury did, however, find that Morton Thiokol breached a warranty covering the PAM rocket motor and awarded the insurers $37,500, the pro rata share for replacing the motor.\textsuperscript{292}

Aside from being the first space jury trial in the United States, \textit{Lexington} illustrates an unwillingness to allow freely negotiated contractual limitations on liability to preclude a negligence action.\textsuperscript{293} The CSLA, and particularly the Amendments concerning reciprocal cross-waivers of liability, were enacted several years after the events giving rise to \textit{Lexington}.\textsuperscript{294} Later, in \textit{Martin Marietta}, the district court dismissed claims for negligence and gross negligence relying primarily on the congressional public policy behind the Amendments.\textsuperscript{295}

\textbf{B. Appalachian Insurance v. McDonnell Douglas}

The Westar VI satellite, which accompanied the Palapa B-2 on the ill-fated flight of the Challenger on February 3,
1984, was the subject of another suit. Five of the insurers that paid Western Union $105 million for loss of the Westar VI later brought suit against McDonnell Douglas, Morton Thiokol, and Hitco for negligence and strict products liability. The trial court honored the exculpatory clauses in the McDonnell Douglas/Western Union service contract and granted summary judgement in favor of the defendants. The appellate court affirmed.

On appeal, Appalachian argued that summary judgement should not have been granted because the waiver provisions in the McDonnell service contract are "ambiguous, unconscionable, against public interest, do not reflect the parties' true agreement, and unlawfully disclaimed strict products liability." Appalachian maintained that the interparty waiver clause included in the McDonnell contract contained language similar to the waiver in the NASA launch service agreement with Western Union. The intent in drafting and adopting the exculpatory language in the McDonnell contract, Appalachian claimed, was to incorporate the same interparty waivers required by NASA in all Shuttle flights. Since NASA's interparty waiver did not preclude a claim between a Shuttle customer and its own contractors, Appalachian argued that the McDonnell contract similarly allowed a subrogation suit brought by Western Union's insurers against McDonnell Douglas and its subcontractors.

The court ruled that although the NASA and McDonnell agreements contained similar language, they were not identical. The McDonnell agreement, explained the court, accomplished the policy behind the NASA in-

297 Id. at 718.
298 Id.
299 Id.
300 Id. at 724-25. NASA required an interparty waiver of liability among customers to encourage use of the Shuttle without incurring liability for damage to other customers' payload. Id.
301 Id. at 725.
terparty waivers, but also included other clear limitations. One of these limitations prevented Appalachian and the other insurers from suing McDonnell Douglas and its subcontractors.

Appalachian also asserted that the same exculpatory clauses were not a “commercially reasonable allocation of risk” and were thus unconscionable. The court responded that when negotiating a contract involving specialized services in a high risk business it was not “unreasonable for the parties to agree Western Union would obtain insurance... rather than to have McDonnell Douglas warrant performance of the upper stage rocket.” The court, in affirming the lower court decision, emphasized that this was “not a standardized adhesion contract but the result of a voluntary agreement.”

C. Martin Marietta v. Intelsat

Martin Marietta Corp. v. Intelsat represents the first judicial effort to interpret new provisions in the Amendments that require participants to execute reciprocal waivers of liability. The district court concluded that all actions in tort, including gross negligence, are waived in light of the strong congressional policy to encourage the private launch industry. This strong interpretation of congressional intent is a departure from launching practice under a typical NASA launch service agreement or the Air Force Model Agreement, typified by the Lexington case, and poses several questions regarding the future of the commercial space launch business.

302 Id.
303 Id.
304 Id. at 730.
305 Id. at 731.
306 Id. at 734.
309 Martin Marietta, 763 F. Supp. at 1334.
311 Martin Marietta, 763 F. Supp. at 1334.
In August 1987 Intelsat and Martin Marietta entered into a contract to launch two satellites on Titan III rockets. Martin Marietta agreed to launch the satellites in return for a fixed payment from Intelsat of $112 million to launch each satellite. Shortly after liftoff of the first launch, the payload's separation system failed to eject the satellite and its orbital booster. Intelsat engineers eventually separated the payload from the rocket, but the delay left the satellite in a useless orbit. Experts estimated the cost to rescue the satellite and place it in a proper orbit was $90 million. Martin Marietta filed for declaratory judgment in the district court of Maryland and Intelsat counterclaimed, asserting breach of contract. In addition, Intelsat brought negligent misrepresentation, negligence and gross negligence claims in an effort to recover damages for lost profits, lost use of the satellite, and rescue costs.

Martin Marietta first argued that the Amendments require parties to execute reciprocal waivers of liability, effectively preempting Intelsat's three tort claims against Martin Marietta. Martin Marietta also urged that the

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513 Martin Marietta stresses that they were to furnish launch services for a fixed price and that they "shall be deemed to have completed the Launch Services for each Launch under this Contract upon the intentional ignition of the Titan III solid rocket motors." Id. art. 5.

514 Martin Marietta Memorandum, supra note 3, at 14; Intelsat Memorandum, supra note 4, at 2.

515 Martin Marietta, 763 F. Supp. at 1329.

516 In a later unpublished opinion, the district court dismissed Intelsat’s claims for breach of contract. See Martin Marietta, 978 F.2d at 142. The Fourth Circuit later revived the contract claims, finding ambiguity in the launch service contract definition of “mission failure.” Id. at 143.

517 Intelsat also specifically challenged Martin Marietta’s reliance on the Amendments as “misplaced,” noting that the Amendments were enacted “one full year after the Contract was signed.” Intelsat Memorandum, supra note 4, at 4.

518 Martin Marietta stated their argument in a memorandum to the court:

The Commercial Space Launch Act prohibits Intelsat from bringing claims for property damage or loss against Martin Marietta, and preempts all state law that is inconsistent with the Act’s provisions or purposes. The Act and its amendments articulate a national policy
strong policy announced in the Amendments imputes cross-waiver provisions to the launch contract. In addition, Martin Marietta asserted that Congress intended the waiver provisions in the CSLA, standing alone, to preempt all state tort claims brought in connection with the launch contract.

The court determined that Congress passed the Amendments to the CSLA, including the cross-waiver provisions, to "encourage industry expansion in a rapidly shrinking market." The court explained that many commercial ventures cannot afford insurance to protect themselves from potentially massive tort actions, so Congress requires cross-waivers of liability in the licensing procedure. The cross-waiver provisions, the court reasoned, are only a condition to receive the license. The fact that OCST issues a license that does not meet this condition does not suggest that the license automatically adopts the waiver provisions. The court therefore rejected Martin Marietta's argument that the Amendments impute such waivers.

The court then emphasized that the remaining claims of negligent misrepresentation, negligence, and gross negligence can only survive if Intelsat established a duty beyond the launch service contract. Normally, duties in tort arise from the efforts of the state to protect a vulnerable party. Since both parties are equally sophisticated in allocating their own risks, the court deferred to specific language in the contract to define Martin Marietta's lim-

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that supports the growth and development of a private-sector commercial launch industry. Intelsat's claims conflict with the explicit language of the Act and are inconsistent with its purpose. Therefore, they must be dismissed.

Martin Marietta Memorandum, supra note 3, at 34-35.

319 Martin Marietta, 763 F. Supp. at 1330.
320 Id.
321 Id.
322 Id.
323 Id.
324 Id. at 1331.
325 Id.
Intelsat then argued that the warranty disclaimer provision in the launch service agreement did not apply to representations made after the contract, and therefore did not shield Martin Marietta from liability. The court stressed that both parties were equally sophisticated and that their relationship was purely contractual. In the absence of "an express duty of due care in making representations," the court found that the claim for negligent misrepresentation after signing the contract could not stand.

Intelsat alternatively conceded an action in ordinary negligence because there were contractual waivers in the launch agreement, but contended that any waivers as to gross negligence were against public policy. In response, the court reasoned that since Congress amended the CSLA to require such cross-waivers, the public policy on this issue was clearly pronounced by legislation. According to the court, the legislative history of the Amendments showed that Congress intended mandatory waivers: (1) to limit the total universe of claims that might arise as a result of a launch; and (2) to eliminate the necessity for all of these parties to obtain property and casualty insurance to protect against these claims. The court concluded that since the Amendments require parties involved in space launch activities to bear their own losses, allowing claims for negligence and gross negligence would undermine clear legislative intent and severely burden the space launch industry.

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526 Id. at 1332.
527 Id. at 1332-33.
528 Id. at 1333.
529 Intelsat states that "even unambiguous contractual provisions which do purport to relieve a party from liability for tort may not, on public policy grounds, be construed to relieve that party from liability for intentional, willful, or grossly negligent acts." Intelsat Memorandum, supra note 4, at 28.
530 Martin Marietta, 763 F. Supp. at 1333.
532 Id. at 1331. The district court speculates that there may possibly be a duty
The court’s exclusion of gross negligence departed from the effect of a typical NASA launch service agreement and the Air Force Model Agreement.\textsuperscript{333} Both agreements contain explicit language excepting waiver of liability for gross negligence or willful acts of the government. Under the Air Force Model Agreement the contractor assumes risk for all loss or damage “except as waived by DOT or resulting from ‘the reckless disregard or willful misconduct of the United States or its agents.’”\textsuperscript{334} A typical NASA launch service agreement provides that the insurance coverage obtained by the contractor “may exclude damage caused by the U.S. Government’s willful misconduct or reckless disregard.”\textsuperscript{335} Under the reciprocal waiver provisions in the Amendments, each party assumes responsibility for property damage or loss from activities carried out under the launch license.\textsuperscript{336} The statutory language of the Amendments requires cross-waivers for any damage or loss and contains no specific exceptions for liability arising out of gross negligence or even willful misconduct.\textsuperscript{337}

On appeal, the Fourth Circuit reversed in part and affirmed in part, upholding the lower court’s dismissal of the negligence and negligent misrepresentation claims, but reversing the dismissal of the contract and gross negligence claims.\textsuperscript{338} As to the contract claim, the court reviewed the dismissal de novo and found that the launch contract is not free from ambiguity when viewed in the light most favorable to Intelsat.\textsuperscript{339} The court carefully an-

\textsuperscript{333} See supra notes 134-42 and accompanying text.
\textsuperscript{334} Kissick, supra note 69, at 38 (quoting Air Force Model Agreement, Art. IV. c.2).
\textsuperscript{335} Id. at 38-39 (quoting NASA Sample Contract, Art. IV. ¶ 3.b).
\textsuperscript{336} Senate Report, supra note 58, at 14. The report clearly states that the cross-waivers of liability “shall stipulate that each party is responsible for any property damage or personal injuries that it sustains.” Id.
\textsuperscript{337} Kissick, supra note 69, at 37-38.
\textsuperscript{338} Martin Marietta, 978 F.2d at 141.
\textsuperscript{339} Id. at 143.
alyzed the launch contract itself and the Interface Control Document, a separate agreement detailing the design and operation of each launch, and found an ambiguity in the definition of "mission failure."\(^{340}\) The court also found that the interplay between Article 6 of the launch contract, which specified a replacement launch as the exclusive remedy, and Article 17, which placed damage caps on all other claims, was "far from crystal clear."\(^{341}\)

As to the negligent and negligent misrepresentation claims, the Fourth Circuit agreed with the lower court's reasoning that no duty of care in tort arose out of the contract or out of the unique relationship of the parties.\(^{342}\) Since the parties are equally sophisticated and their only relationship is contractual, no express duty of care arises out of the contract.\(^{343}\) Similarly, the relationship between Martin Marietta, a large aerospace company, and Intelsat, an international telecommunications giant, does not present circumstances where the law imposes a duty of due care independent of the contract.\(^{344}\) Therefore, the appellate court upheld the dismissal of the negligent and negligent misrepresentation claims.\(^{345}\)

Finally, the Fourth Circuit refused to follow the district court's adherence to a congressional intent evident in the Amendments to protect parties from liability for their own gross negligence.\(^{346}\) The court first noted that the contract was signed before enactment of the Amendment and added, in dicta, that even if the Amendments applied retroactively, there is no evidence of congressional intent to waive gross negligence claims.\(^{347}\) The Fourth Circuit reversed the gross negligence dismissal, relying on a Mary-

\(^{340}\) *Id.* Martin Marietta argued that failure of the satellite to separate was a "mission failure" leaving Intelsat with the sole remedy of a replacement launch. *Id.*

\(^{341}\) *Id.*

\(^{342}\) *Id.* at 144.

\(^{343}\) *Id.*

\(^{344}\) *Id.*

\(^{345}\) *Id.* at 145.

\(^{346}\) *Id.* at 146.

\(^{347}\) *Id.*
land court of special appeals case,\textsuperscript{348} which found that a contract cannot waive liability for gross negligence.

The Fourth Circuit reaffirmed the lower court's emphasis of the launch contract as the basis of liability between a satellite owner and a launch company. The court, however, refused to allow a waiver of gross negligence claims despite the strong language of the Amendments supporting an underlying policy to encourage growth of the American space launch industry. The Fourth Circuit may have only cracked the door for tort recovery in space launch mishaps, but this small glimmer of potentially massive tort liability may blind the vision of private space entrepreneurs.

VI. CRIES FOR TORT SHOULD FALL ON DEAF EARS

For years our government, through NASA and the Air Force, dedicated large sums of money and took great risks to develop the technology of space flight. The government now wishes to transfer this technology and many of the facilities to the private sector and allow economic forces to shape the new industry. The small space entrepreneur, overburdened by the piecemeal regulation of private launches, urged Congress to pass the CSLA in 1984. Following the Challenger disaster and a breakdown in the space insurance market, private launchers demanded relief from massive liability and expensive insurance. Responding to this outcry, Congress amended the CSLA in 1988. The effect of these legislative efforts went essentially untested in court, until the district court and Fourth Circuit decisions in \textit{Martin Marietta}.

\textit{Martin Marietta} emphasizes the importance of the launch service agreement.\textsuperscript{349} Since all foreseeable private


\textsuperscript{349} Martin Marietta Corp. \textit{v.} International Telecommunications Satellite Org., 763 F. Supp. 1327, 1332 (D. Md. 1991), \textit{aff'd in part, rev'd in part}, 978 F.2d 140 (5th Cir. 1992) ("Equally sophisticated parties who have the opportunity to allocate risks to third party insurance or among one another should be held to only those
launch activities will involve large and sophisticated companies, the aggrieved party should not find relief beyond the obligations specifically included in the launch contract.\textsuperscript{350} Each participant in the launch must allocate its own risks, buy insurance, or make other contractual arrangements to protect its investment.\textsuperscript{351} Anything can be contracted, and in light of the mandatory reciprocal cross-waivers of liability, there is a strong public policy supporting agreements to waive tort claims.\textsuperscript{352}

The Fourth Circuit in \textit{Martin Marietta}, however, rekindled the tortious flame for claims of gross negligence. The appellate decision overrules a policy followed by the lower court denying any recovery in tort short of intentional acts for a space launch mishap. Now an aggrieved satellite owner, after following the mandates of the Amendments to sign cross waivers of liability and purchase insurance, can still allege gross negligence. This window of opportunity to recover in tort provided by the Fourth Circuit conflicts with the overall policy of the Amendments to insulate the fledgling launch industry from uncertain liabilities.

A legal system free of nonintentional tortious recovery may arguably lead to a lack of assurance that the launch provider will perform its obligations in good faith. The customer is, however, assured of performance under the contract in two independent ways. First, the licensing procedure of the OCST insures a high level of technical competency and safety.\textsuperscript{353} Second, parties are free to contract for any performance standards or contingency arrangements if the launch provider does not supply adequate services. Although the law of commercial space launches announced in \textit{Martin Marietta} relies primarily on the private agreement between parties, the amended

duties specified by the agreed upon contractual terms and not to general tort duties imposed by state law.

\textsuperscript{350} \textit{Id.}
\textsuperscript{351} \textit{Id.}
\textsuperscript{352} \textit{Id.} at 1333.
\textsuperscript{353} 14 C.F.R. § 411.5 (1992).
CSLA provides important checks through licensing and insurance requirements. The clear and resounding spirit of the amended CSLA is that free enterprise and freedom of contract now reign in the commercial space launch industry.

Space offers great rewards, but only at great risk. To encourage bold entrepreneurs to explore and exploit the vast resources in the great beyond, Congress passed the Commercial Space Launch Act in 1984 and later its Amendments in 1988. The rules of the game that courts should now follow are simple: enter at your own peril, allocate the risks in a contract, and do not scream "Tort!" when something goes wrong.