WHAT IS "INFORMED CONSENT" FOR SPACE-FLIGHT PARTICIPANTS IN THE SOON-TO-LAUNCH SPACE TOURISM INDUSTRY?

Tracey Knutson[*]

It's a dangerous business, Frodo, going out your door. You step onto the road, and if you don't keep your feet, there's no knowing where you might be swept off to.

J. R.R. Tolkien

Or, stated another way, what exactly do the commercial space tourism companies have to tell you *before* you pay your money, agree to fly with them and board one of their space liners? On December 15, 2006, the FAA/AST[1] published the Final Rule on Human Space Flight Requirements for Crew and Space Flight Participants as it had been statutorily required to do by Congress in the Commercial Space Launch Amendments Act ("CSLAA") of 2004.[2] The FAA/AST's final rule, which became

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[*] Tracey L. Knutson is a licensed attorney in Anchorage, Alaska whose primary practice involves working with recreation and adventure sports commercial operators, public land administrators and recreation oriented educational groups. An experienced trial lawyer, Tracey defends recreation companies and sports groups from liability claims, often negotiating pretrial conclusions that minimize time and expense; in addition, she provides risk management and training services. In April 2007, Tracey was appointed by the Secretary of Transportation, Mary Peters, to sit as a Representative on the Commercial Space Transportation Advisory Committee (COMSTAC); Tracey sits on the Risk Management Working Group within COMSTAC.

[1] The 1984 Commercial Space Launch Act established the Department of Transportation ("DOT") as the Federal Agency responsible for regulating and overseeing the private commercial launch vehicle industry. *See* 49 U.S.C. § 2604 (1984). In 1984, DOT established the Office of Commercial Space Transportation ("OCST") which reported to the Secretary of Transportation; then in 1995 OSCT oversight was delegated to the FAA Administrator who created the Office of the Associate Administrator for Commercial Space Transportation (now, "AST"). Currently the FAA/AST has oversight and regulatory authority for this industry. The FAA's authority to issue rules regarding commercial human space flight is found at 49 U.S.C. § 70101(a)(13).

[2] Commercial Space Launch Amendments Act of 2004, Pub. L. No. 108-492, 118 Stat. 3974 (2004) [hereinafter CSLAA]; Human Space Flight Requirements for Crew and

effective on February 13, 2007, expressly states in the Description of Final Rule and Discussion of Comments that "...*before* receiving compensation *or* agreeing to fly a space flight participant, an operator must inform each space flight participant *in writing* about the risks of the launch and reentry vehicle type. For each mission an operator must inform a space flight participant, *in writing*, of the known hazards and risks that could result in a serious injury, death, disability or total or partial loss of physical and mental function....[and] an operator should inform a space flight participant that there are also unknown hazards.... The operator also must disclose that participation in space flight may result in death, serious injury, or total or partial loss of physical or mental function. An operator must inform each space flight participant that the United States Government has not certified the launch vehicle and any re-entry vehicle as safe for carrying crew or space flight participants."[3] (Emphasis added.) This constellation of warnings the operators must give the space flight participants ("SFPs") is what Congress and the FAA/AST are calling "informed consent."[4] Bottom line is that, by federal regulation, the space flight operators ("operators") have to give the SFPs a series of written warnings on risks *before* they take your money, agree to fly you to dark space (or wherever...) and then take you aboard one of their space liners. But, what constitutes a complete or fair warning? What risks do they have to warn you about? How far do the warnings have to go? What *exactly* have the federal statute and regulations mandated as between the operator and the SFP? And please know, it's fair to say that even the developing space tourism industry is asking these questions. So, to answer this question, first consider the following.

The CSLAA set out a goal of "safely" opening space to the American people and private enterprises.[5] In drafting the CSLAA, Congress found that: space transportation is "inher-

Space Flight Participants, Final Rule, 14 C.F.R. Parts 401, 415, 431, 435, 440 and 460 (2006).

3 14 C.F.R. § 460.45 (2006).

4 14 C.F.R. § 460.65 (2006); 49 U.S.C. § 70105(b)(5)(A-C) (Supp. 2004).

5 49 U.S.C. § 70101(a)(10) (Supp. 2004).

ently risky" and that the public interest would be served by creating a "clear legal, regulatory and safety regime."[6] Congress also said that launch licensees/permittees (the operators) would have to obtain written "informed consent" from SFPs.[7] And then Congress said that the FAA/AST (through the Secretary of Transportation) "may" issue safety regulations in the event of a serious or fatal incident and "may" propose additional regulations 8 years after passage of the CSLAA.[8] Now let's get all of the apples and oranges (or contradictions here...) straight. Because Congress hasn't or didn't adopt a Federal tort regime for human spaceflight, the FAA/AST Final Rule takes a hands-off wait-and-see approach to regulating safety issues between the operator(s) and the SFPs (apple).[9] But Congress also said that the public interest would be served by a clear legal regulatory and *safety* regime (orange).[10] Additionally, while Congress said that the goal of the CSLAA is to *safely* open space to the American people (apple) it then went on to say that space transportation is inherently risky (orange).[11] Again, because Congress didn't adopt a tort regime for human space flight, the FAA/AST's Final Rule really only protects 2 groups: the uninvolved public and the U.S. Government (apple). There are no

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[6] *Id*. § 70101(a)(12 & 14).

[7] *Id*. § 70105(b)(5)(A-C).

[8] *Id*. § 70105(c)(4).

[9] *See* 49 U.S.C. § 70101(a)(15) (Supp. 2004) wherein Congress states that regulations must evolve as the industry matures so that regulations don't stifle technology development. Additionally, FAA/AST discusses Risk to Space Flight participants and notes:

> [A]s the FAA noted in the NPRM, the CSLAA does not provide the authority to protect space flight participants except in certain circumstances. 49 U.S.C. 70105(c); 70 FR at 77270. The CSLAA only allows the FAA to issue regulations restricting or prohibiting design features or operating practices that result in a human space flight incident or a fatality or serious injury to space flight participants during an FAA authorized flight until December 23, 2012. For the next six years, the FAA has to wait for harm to occur before it can impose restrictions. Instead, Congress requires that space flight participants be informed of the risks. To that end, the FAA is establishing notification requirements.

FAA, Human Space Flight Final Rule, 70 Fed. Reg. 75615, 75624, at II(C)(1) (2006) (on Launch and Re-entry With a Space Flight Participant).

[10] 49 U.S.C. § 70101(a)(14) (Supp. 2004).

[11] *Id.* § 70101 (a)(12).

real safety requirements or protections given to the SFPs in this Rule and very little that is *required* of the operators in conducting their relationships with the SFPs (orange).[12] With respect to SFPs, the commercial human space flight industry is not required to obtain medical clearance on the passengers and must only give the written warnings noted above and obtain the participant's written consent to participate.[13] The written "informed consent" is largely defined as "information" about the risks of the activity and the safety history of human space vehicles; but note that the regulations also require what appears to be safety type discussions or question and answer sessions.[14] These two things, written consent and oral questioning of the operator, are clearly intended to achieve some type of "cognizance test" or "...affirmation that the space flight participant understands what he or she is getting into before embarking on a mission."[15] (Big orange). There is no doubt that Congress and the federal oversight agency are trying to establish a "risk shifting" regime as between the SFP and the operator *if* adequate information is delivered from the operator to the SFP. As the Associate Administrator of the FAA/AST said recently in public comments regarding the Tenth Annual FAA Commercial Space Transportation Conference's focus on safety and on-going vehicle development and design, "...one step at a time until you have a vehicle....*that convinces the passenger* the risk is worth taking."[16] (Emphasis added.) So, looking at the apples and oranges, do the "informed consent" requirements in the Federal statute and regulations mean its now "safe" to open human space flight to commercial endeavors?

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[12] *See supra* note 8.

[13] *See generally*, 14 C.F.R. § 460.45 (2006).

[14] The Final Rule issued by the FAA/AST also requires that before actual flight, licensed operators must also give SFP's an opportunity to orally ask questions to enable them to better understand the hazards and risks of the "mission." *Id*. at (f).

[15] Again, *see* Human Space Flight Final Rule, *supra* note 9, at II(C)(2)(a) (on the space flight participant's ability to be informed).

[16] Remarks by Patti Grace Smith, Associate Administrator for the Federal Aviation Administration Office of Commercial Space Transportation, to the Center for Strategic and International Studies in Washington D.C., Mar. 28, 2007, *available at* http://www.faa.gov/about/office_org/headquarters_offices/ast/about/speeches_testimony/.

Which brings us back to the primary question...what exactly is "informed consent" and what DO the operators have to tell you before they take your money and book you on one of their flights? While the CSLAA requires operators to obtain written "informed consent" from SFPs, this author takes a particular view of that phrase. It is first important to understand that Congress expressly stated that this emerging industry was not to be viewed as highly regulated transportation like the airline industry but rather was comparable to adventure travel;[17] Congress even went so far as to compare the participants to daredevils, visionaries and adventurers.[18] In the adventure sport context then, there are a number of different operator-participant documents or warning terms of art that are used (including release and waiver contracts, participation agreements, informed consent, etc.) and it is important to distinguish among them. Informed consent documents derive most commonly from medical or therapeutic regimes and these documents record that treatment risks have been disclosed and consent to the treatment has been obtained.[19] If appropriate consent is in place then the medical or therapeutic provider has some protection from the "inherent risks" of the treatment, but no

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[17] *See* 14 C.F.R. Parts 401, 415, et al. Human Space Flight Requirements for Crew and Space Flight Participants, Proposed Rule, 70 Fed. Reg. 77261, 77269, at § II(B)(1) [hereinafter Proposed Rule] (wherein the FAA/AST expressly states that the CSLAA characterization of "Space Flight Participant" "...signifies that someone on board a launch vehicle or re-entry vehicle is not a typical passenger with typical expectations of transport, but someone going on an adventure ride.") This section of the Proposed Rule also quoted Michael Kelly as characterizing "the experience as an adventure ride." *Id.* Additionally, the Proposed Rule stated that "[O]thers have compared it to mountain climbing, skydiving, not wearing a helmet while riding a motorcycle, and other risky endeavors." *Id.*

[18] *See* Timothy Robert Hughes & Esta Rosenberg, *Space Travel Law (and Politics): The Evolution of the Commercial Space Launch Amendments Act of 2004*, 31 J. SPACE L. 1, at 46 (2005) (stating that Rep.(s) Boehlert and Rohrbacher testified, respectively, in the Congressional Record that the commercial human space flight industry, "...is like a baby in its crib..." and the "...industry is at the stage when it is the preserve of visionaries and daredevils and adventurers...who will fly at their own risk [and]...who do not expect and should not expect to be protected by the government." *Id.*

[19] *See generally*, DOYICE J. COTTON & JOHN T. WOLOHAN, LAW FOR RECREATION AND SPORTS MANAGERS, 114, at ch. 2.24 (Kendall/Hunt Publishing Co., Dubuque, Iowa, 3d., 2003) (on Inherent Risk Related Defenses: Informed Consent Agreements & Agreements to Participate).

protections from negligence.[20] What makes informed consent unique is that something is *done to* the participant by another party (usually the medical provider) with the participant's consent. In contrast, in the true adventure sport activity, the participant agrees to participate in a purely voluntary activity and the participant will have the same "duty" as the operator – to act like a reasonably prudent person in whatever circumstance is presented.[21] Nothing is done *to* the participant. Because recreational or adventure activities are seen as voluntary, courts by and large hold that there is no public policy which prohibits a participant from releasing or contractually exculpating an operator – in advance – for not only liabilities associated with the inherent risks of the activity, but also for the operators' simple negligence.[22] After reviewing some of the Congressional history associated with passage of the CSLAA of 2004,[23] it is fairly clear to the author that Congress' real concern here was not in presenting the infant space flight industry as a provider setting out to "do" anything to participants but rather as a young industry that had no established community standards or customary practices so that the importance of warning participants of the risks and dangers was very recognizable. For this reason, I believe that Congress intended to impose on operators a statutory or codified "duty to warn" when it used the phrase "informed consent" and this is how the issues surrounding what an operator must tell a putative SFP before flying are discussed in this article.

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[20] *Id.*

[21] This is the basis of what the law calls "contributory" or "comparative" fault, which means that the legal duty to act reasonably in any given situation literally runs both ways between the participant and the operator. In other words, legally speaking, both the participant and the operator have the legal duty to act reasonably given the situation they are in, and they can both bear fault and corresponding liability. *See e.g.*, Smith v. North Carolina DNR, 436 S.E. 2d 878 (N.C. App.1993); Voight v. Colorado Mountain Club, 819 P. 2d 1088 (Colo. App. 1991).

[22] *See* Knutson & Assoc., *Defenses to Negligence Claims: Release and Waiver Documents (Including What Needs to be In These Documents and How To Properly Administer Them)*, *in* STATE OF RISK - RISK MANAGEMENT IN THE OUTDOOR INDUSTRY, at ch. 7(a), and attachment DVD: Law of All 50 States on Use of Release and Waiver Documents, http://www.traceyknutson.com (last visited Aug. 10, 2007).

[23] This history is presented in remarkable detail in Hughes & Rosenberg, *supra* note 18.

So, again, what type of discussion or information will the operator have to provide in order to effectuate the legal shift of risk (and therefore liability) back to the SFP? According to the common law on recreational style negligence[24] as it has developed around the country, it is fair to say that the *standard of care* for commercial recreation or adventure sport operators is that they have a *duty* to inform guests of the risks that they are taking in participating in an activity.[25] In fact, warning is one of the most critical duties adventure sport operators owe to their clients; and, warnings will be one of the most important aspects of defense. When we think of a *standard of care and/or a duty* we are looking at what a reasonably prudent guide or instructor or operator should do under the circumstances of any given activity to protect or minimize/mitigate the risks a client encounters. It is clear that explaining/instructing/warning is really the foundation of minimizing or mitigating risks associated with any activity.[26] Thus, the "standard of care" anticipates that a

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[24] Negligence under the law is generally defined as the failure to use ordinary care; that is, failing to do what a person of ordinary prudence would have done under the same or similar circumstances. Essentially we are looking to determine whether an operator, guide or land administrator could or should have recognized an unreasonable risk and then did nothing to warn the participant/student or to reduce or eliminate the unreasonable risk. To examine negligence in behavior or conduct, look for two things: was the risk foreseeable and was the risk unreasonable. *See* COTTON & JOHN T. WOLOHAN, *supra* note 19, at ch. 2.10 (on Negligence Law).

[25] Duty generally refers to one party's responsibility to take reasonable care for the protection of another party. Duty has three primary origins: 1.) from a relationship inherent in the situation; 2.) from a voluntary assumption; or 3.) from a duty mandated by a statute or regulation of some sort. *See generally*, COTTON & JOHN T. WOLOHAN, *supra* note 19, at ch. 2.11 (on Elements of Negligence). *See also*, Licato v. Eastgate, 499 N.Y.S. 2d 472 (A.D. 3 Dept. 1986); Saffro v. Elite Racing Inc., 98 Cal. App. 4th 173 (Ct. App. California, May 7, 2002)(rev. denied, 2002 Cal. Lexis 5268 (July 2002)).

[26] Think of standard of care or breach of the standard of care as the "act or omission" - the thing that was done or not done - looking at what the guide or instructor (or space flight operator) did or did not do to protect a participant/client that was not in accord with what a reasonably prudent guide or instructor should do under those circumstances. Generally, determining what a reasonable person would have done under the circumstances is establishing the standard of care. Again, standards may be set by statute, ordinance or regulation or by the profession. A standard of care will take into account who is delivering the service and what their level of knowledge should be - in other words, the standard will be what would be expected of a reasonable and careful person carrying out the same activity (i.e. - a reasonable guide, instructor, etc.). The standard of care then, for a professional person, is that degree of care that is shown by a reasonably prudent practitioner operating in like or similar circumstances. So, it becomes crucial to understand established professional customs and practices in your field.

reasonable and prudent operator carrying out the same activity will inform a participant of the risks.

After a period of time in any sport, both the participants and the operators begin to understand the processes necessary to minimize or mitigate the risks and how the risks and the acts of minimizing the risks should be explained. As such, *industry standards* begin to form and become articulated. As it relates to what a current commercial space adventure or tourism operator should tell you before they book you onto one of their space flights, this is exactly one of the conundrums of new activities or sports, including commercial human space flight – because the full range of risks are not yet realized, there are not articulated or developed standards, policies and procedures or warnings regarding risks and how those risks are minimized. Moreover, because there will be so few viable operators (competition to survive the formation period is more intense at this stage) in the nascent period of any sport, ideas and experiences are not readily shared or agreed upon so that accepted standards will not easily coalesce amongst operators. Without accepted standards, mitigation processes and effective warnings *are* difficult to articulate. It is fairly clear already in the young space tourism industry that, given humankind's overall very limited history in space,[27] the stagnation of the old official government space industry,[28] the lack of a proven safety record to date of experimental or research type rocket planes[29] and the simple disparity in

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See Catherine Hansen-Stamp & Charles R. (Reb) Gregg, eds., *The Elusive "Reasonable Person"*, THE OUTDOOR EDUCATION AND RECREATION LAW Q. (Spring 2001); ROSS CLOUTIER ET AL., LEGAL LIABILITY AND RISK MANAGEMENT IN ADVENTURE TOURISM 16-17, at ch. 2 (on tort law) (Bhudak Consultants, Kamloops, British Columbia, 2000).

[27] *See* Jeffrey F. Bell, *Rocket Plane Roulette*, SPACE DAILY, Mar. 7, 2007, http://www.spacedaily.com/reports/Rocket_Plane_Roulette_999.html (discussing the flight history of experimental rocket planes).

[28] *Id*. *See also*, GREG KLERKX, LOST IN SPACE: THE FALL OF NASA AND THE DREAM OF A NEW SPACE AGE (Vintage Books, 2004). *See also,* Robert W. Poole Jr., *Is This Any Way to Run Space Transportation*, *in* EDWARD L. HUDGINS, SPACE: THE FREE-MARKET FRONTIER, at part 2, ch. 4 (Cato Institute, 2002).

[29] *See* Bell, *supra* note 27 (stating that: "For a prospective space tourist, the relevant record for suborbital rocket planes is: 8 life threatening accidents in 458 flights, for a loss rate of 1 in 57." Also stating, "[T]he fatal crash rate will be at least 1 in 200 and probably more like 1 in 50."); *see also*, Laura Montgomery, *Space Tourism and Informed Consent: To Knowingly Go*, TRANSLAW (Spring 2004) (citing the Columbia Accident

vehicles currently being developed that standards are a long way off.[30]

Bringing this explanation back to the question of what a commercial space flight operator should tell a SFP before booking him or her on one of these as yet unscheduled flights, the starting point is the simple knowledge that commercial human space flight entrepreneurs are legally (if not morally)[31] *duty* bound (both by common law principles associated with the "duty to warn" in adventure sports and now by Congress' codification of that duty as "informed consent")[32] to explain to their space-faring customers *all* of the risks associated with this activity.[33] The more focused question then becomes what a reasonably prudent operator should tell a potential SFP about the myriad risks associated with commercial spaceflight?

Investigation Board report of August 2003 which stated that launch vehicles have a 14.6 percent failure rate).

[30] On this last point, then, it is clear why the FAA/AST has taken a hands off approach to regulation; absent further development, *what* pray tell, *is* there to regulate?

[31] It is worth noting that "tort" law is primarily concerned with compensation for fault based accidents. Based on the specific facts in any given case, courts rule on who is at fault in order to award compensation; or, legislatures will respond to societal conditions and codify ideas regarding duty and fault. These common law court rulings and legislative enactments result in pronouncements of standards of care, essentially making statements as to appropriate societal values. For discussions on these concepts, *see* COTTON & JOHN T. WOLOHAN, *supra* note 19, at 56 – 57, ch. 2.10 (on Negligence Theory); CLOUTIER, *supra* note 26, at 12, ch. 2 (on Tort Law).

[32] On common law warnings, *see* Pell v. Victor J. Andres High School and AMF, Inc., 462 N.E. 2d 858 (Ill. 1984), Bucheleres v. Chicago District Park, 646 N.E. 2d 1326 (Ill. App. 1 Dist 1995), Ewell v. United States, 579 F. Supp. 1291 (D. Utah 1984); *see also* RESTATEMENT (THIRD) OF TORTS § 2 & Related Comments (1997) finding that adequate obvious warnings from product manufacturers are necessary but may not provide a complete legal defense. *See also*, *supra* notes 3 & 4.

[33] The specific wording used in CSLAA is: "...*before* receiving compensation *or* agreeing to fly a space flight participant, an operator must inform each space flight participant *in writing* about the risks of the launch and reentry vehicle type. For each mission an operator must inform a space flight participant, *in writing*, of the known hazards and risks that could result in a serious injury, death disability or total or partial loss of physical and mental function....[and] an operator should inform a space flight participant that there are also unknown hazards.... The operator also must disclose that participation in space flight may result in death, serious injury, or total or partial loss of physical or mental function. An operator must inform each space flight participant that the United States Government has not certified the ... vehicle as safe for carrying crew or space flight participants." CSLAA, *supra* note 2 (emphasis added). *See* 14 C.F.R. § 460.45 (2006).

Written warnings and contractual exculpation documents[34] for this developing adventure activity will need a detailed and descriptive section titled "Inherent Risks" and/or "You Need to Understand These Issues" followed by a list of industry concerns or "realisms."[35] As discussed above, where it is clear that one of the primary hazards or risks associated with this young industry is that there *are no* accepted standards guiding the industry regarding critical concerns like the physical condition of the SFP, what gear the SFP should be required to wear, what safety equipment should be in the vehicle, what is required in a safety briefing, what type of vehicle is capable of routinely traveling to suborbital space, or even what specific categories of aircraft or specific instrument ratings a pilot must have,[36] SFPs should be appraised of this dearth of standardized knowledge, awareness and response. Participants need to know – right up front – that this industry and the hybrid technologies it is creating are experimental at best. The listing of issues needs to *expressly* state or explain the fact that the industry is largely unregulated and is considered by law makers to be the province of "daredevils, visionaries and adventurers."[37] The warnings need to give the

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[34] It is critical to understand that written warnings or information (think: common law duty to warn resulting in common law defense of assumption of risk) are distinctly different (in the legal sense) from contractual release and waiver documents in which a participant relinquishes certain legal rights in advance in exchange for the opportunity to participate in the activity. Warnings will provide common law style defenses; releases will provide contractual defenses and common law defenses. *See* STATE OF RISK, *supra* note 22, at chs. 6(f) (Failure to Warn), 7(a) (Defenses to Negligence Claims: Release and Waiver Documents (Including What Needs to be In These Documents and How To Properly Administer Them)), & 7(c) (Assumption of Risk).

[35] If truly exculpatory in nature, the document should go on to express all of the relevant legal requirements like express assumption of risk, relief from negligence, indemnity, forum selection clauses, etc. *See infra* notes 59-62.

[36] The FAA/AST flight crew guidelines simply recommend that pilots have a pilot's license with instrument rating and aeronautical experience, a second class airman medical certificate, and be thoroughly trained in all aspects of the flight systems. It is notable too that pilots and crew on carrier aircraft, if any, will not be considered crew for purposes of the regulations. *See* 14 C.F.R. § 460.5 and Human Space Flight Final Rule, *supra* note 9, at II(B)(3). *See also*, Jeff Foust, *The Safety Dance*, THE SPACE REV., Feb. 21, 2005, http://www.thespacereview.com/article/326/1 (pointing out that one of the key aspects of the CSLAA is the limitation on the FAA/AST to regulate crew and passenger safety, that FAA/AST guidelines and drafts are not specifications, and quoting former Secretary Norman Mineta who said that the FAA/AST does not want "...to stifle industry..." with over-regulation).

[37] *See supra* note 18; *see also*, Montgomery, *supra* note 29.

information that the reason there is little to no regulation is because the industry is not seen by the Federal Government as anything akin to the airline or transportation industry. SPFs should be made to understand that they should not view their participation as a definite ride from point A to point B, but rather as an experience where the end result is getting to space,[38] however briefly or momentarily. The written information or warning should[39] state that the vehicles being used will not have undergone near the amount of testing that normal commercial travel style vehicles undergo before they are licensed for commercial use. To that end, the SFPs should understand that they, quite literally, are part of the testing process and they need to *see themselves* as visionaries and daredevils who are willing to pay, beyond just the $200,000 ticket cost,[40] the ultimate price. Furthermore, the warnings need to *expressly* state that it has been reliably estimated there will be somewhere in the neighborhood of a 1 in 200 failure rate or higher.[41] The warnings must say that the entire space industry is really only 40 years old and in that time a fatality rate of just over 4 percent has emerged between the U.S. and Russian space programs with fewer than 450 people having flown to space, 18 of whom perished,[42] demonstrating that the estimates of failure are reliable.[43] The express warnings should also notify the SFP of their potential financial liabilities for a catastrophic incident

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[38] *Id.*

[39] Actually, must state, according to the Final rule; *see* 14 C.F.R. §460.45(b)&(c).

[40] *See* David Leonard, *Space Tourism Survey Targets Cost Factor*, Oct. 23, 2006, MSNBC, http://www.msnbc.msn.com/id/15120091/ (quoting a basic price tag for a Virgin Galactic space liner seat at roughly $200,000).

[41] *See* Jeff Foust, *Weighing the Risk of Human Spaceflight*, SPACE REV., July 21, 2003, at *One Former Astronaut's Perspective*, 2, http://www.thespacereview.com/article/36/2 (with former astronaut and space shuttle pilot Rick Hauck stating that he doubts he would have flown to space if he had known of the 4% fatality rate then).

[42] *Id.*; *see also*, *supra* notes 27 & 29.

[43] In the later portions of the warning document where *acknowledgments* are made, the SFP should be required to acknowledge that they have been advised to prepare or update their wills and to otherwise put their affairs in order. *See* Montgomery, *supra* note 29 (wherein Greg Maryniak, executive director of the X-Prize Foundation is quoted as having stated/contemplated during an FAA conference that prospective passengers should receive pre-flight notices advising them to make out their wills).

under the risk sharing regime[44] established in CSLAA – that they (or their families or estates or businesses) could literally bear some financial responsibility for the costs of an accident under the terms of the federal legislation.[45] SFPs should be expressly told that, as of this moment in time, there are no insurance products in existence that will cover them – or the operators – for liabilities related to participating in these activities. SFPs should be told that the pilots for these vehicles may vary in skill level and are not certified for aeronautic type flying by the FAA.[46] This entire discussion, of course, also means that the more physically oriented risks associated with space flight need to be outlined; participants will need to be informed of and acknowledge things like illness at certain g-force levels, the possibilities of radiation exposure, the physical stresses of re-entry, the emotional or psychological risks associated with space travel and of extreme or adventure travel with fellow SFPs for whom the strains may be unpredictable.[47] It should be *plainly and expressly* conveyed that the stresses to the human body of even

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[44] *Id.* (stating that "...by excluding space flight participants from eligibility for indemnification by the federal government against third party claims, H.R. 3752 declines to subsidize the passenger."); also quoting testimony from Raymond Duffy Jr., a senior vice president for Willis InSpace Underwriters during committee testimony that, "[i]f someone is willing to participate in commercial human space flights at this stage of its development then the risk should be dealt with solely between the passenger and the launch provider." *Id.* Additionally, quoting a House report that notes: "...space flight participants wishing to ride on board a launch vehicle have chosen to undertake a risky venture of their own accord. As such, they do not merit the financial security provided y the promise of indemnification. Moreover, space flight participants are not subject to any substantive government regulation." *Id. See also*, Hughes & Rosenberg, *supra* note 18, at 59 (stating that, "The 2004 Space Act allows individuals to undertake space flight at their own physical and financial risk. Space flight participants are excluded from indemnification eligibility under the 2004 Space Act and are not entitled to the benefits of liability insurance coverage.").

[45] Does the public really understand this yet? How many of the millionaires who will likely make up the first wave of space tourism will actually be willing to bet the farm, or the kids' financial future knowing this fact?

[46] *See supra* note 36.

[47] *See supra* note 33; *The Safety Dance*, *supra* note 36 (discussing the Medical memorandum released by the FAA/AST). *See also*, Harvey Wichman, *You Can't Throw Your Socks on the Floor in a Spacecraft*, *in* PAULA BERINSTEIN, MAKING SPACE HAPPEN – PRIVATE SPACE VENTURES AND THE VISIONARIES BEHIND THEM, at ch. 3 (Plexus Publishing, 2002); and *id.*, *Space and the Body: Are We Robust Enough to Venture Out?*, at ch. 4

suborbital flight are, in and of themselves, fairly extreme and as yet, still not completely defined.

Readers who have done other types of adventure activities, for example rafting, will recognize that the release and waiver documents used in those adventures don't recite the kind of "industry wide" statistics being advocated in this article. The question arises, why? First, and most conclusively, there are no Federal statutory or regulatory mandates requiring provision of this information in other adventure activities. Second, with more developed adventure activities, say for example mountain climbing, sky diving or rafting, much information is already *known* about the risks. There are numerous industry standards to look to in these other activities. In rafting, for instance, it is known which boats are most useful for oar or paddle rafting and they come with very specific manufacturers use guidelines. This is also true of the gear used in skiing, mountain climbing, sky diving, etc. The agencies permitting these activities on state and Federal lands by now know from experience the volumes of participants and impacts that any given use area can sustain. Large trade associations have formed over the years and these associations promulgate safety recommendations in their respective activities and provide risk management training.[48] In other words, gear, equipment, standards, policies and procedures, emergency response protocols, marketing, guide qualifications, etc. have all been learned and identified and in many cases, have now even been vetted by the courts.[49] In contrast, where the commercial human space tourism industry is in its infancy, many of the risks of space travel are quite literally unknown. Therefore, the putative SFP needs to know that beyond

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[48] *See, e.g.,* Professional Paddlesports Association, http://www.paddlesportsindustry.org (last visited Aug. 8, 2007); Heli-Ski US, http://www.heli-ski.org (last visited Aug. 8, 2007); and American Mountain Guides Association, http://www.amga.com (last visited Aug. 8, 2007).

[49] *See, e.g.*, Madsen v. Wyoming River Trips, 31 F.Supp.2d 1321 (Wyoming DC 1999) (wherein the court examines proper loading of river boats); Voight v. Colorado Mountain Club, 819 P.2d 1088 (Colo. App. 1991) (wherein the court examines the mutual duties between participants and guides to, respectively, follow directions and instruct); Prillaman v. Sark, 567 S.E. 2d 76 (Ga. June 2002) (wherein the court looks to safety guidelines promulgated by a national cheerleading association to determine whether the coaches advice was given with reasonable care).

developing the early or initial hardware, the space tourism industry has really not yet developed any of the standard protocols associated with other adventure activities. This industry hasn't really even yet reached the level of a *quantifiable* "adventure." If a commercial adventure activity operator in a more developed industry like rafting or heli-skiing were going to take their clients along on commercial endeavors using unproven or experimental rafts or helicopters their attorneys would be obligated to appraise the operators of their legal and moral duty to warn their clients of these well in advance of a client paying for or committing to participate in any way. Remember, while *legal duties* are being discussed here – the legal "duty to warn" can, in many ways, be likened to a fairness principle.[50]

It is also worth noting that the developed case law on pre-recreational warnings is fairly uniform in saying that effective (or legally supportable) warnings are specific, obvious and direct, unambiguous, easy to understand, simple and complete.[51] So, the warnings developed on all of these issues related to space tourism then, have to be in clear understandable wording that any "average" person, (the "reasonably prudent person") can understand. There can be no language that obfuscates the meaning of a risk or incident – nothing like the engineering terms of art used in the statement, "the Sea Launch Zenit experienced an anomaly" today during launch operations."[52] Operators will have to speak clearly, simply and completely. As opposed to the Sea Launch Zenit example, operators must be prepared to say that their rocket plane or space liner blew up and disintegrated in a ball of fire when they express warnings in this new adventure industry.

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[50] *See supra* note 31.

[51] *See* Duffy v. Camelback Ski Operation, 1992 U.S. Dist. Lexis 8988(PA); Missar v. Camelback Ski Resort, 1984 Pa.D.&C. Lexis 326; Passero v. Killington LTD, 1993 U.S. Dist. LEXIS 14049 (PA).

[52] This was the language of the official statement issued from Sea Launch when its commercial Sea Launch Zenit 3SL rocket disintegrated in a fiery explosion on January 30, 2007. *See* Space Travel, Exploration and Tourism, http://www.space-travel.com/Launch_Pad.html (last visited Aug. 14, 2007) (quoting a statement issued by Sea Launch).

A reasonably prudent SFP will want to know these things about the activity they are paying for and embarking on so that they can make an informed decision about participation. Where Congress has mandated not only that operators give written warnings but also that SFPs give their signed written consent to participating in the flight activities, it is clear that Congress intended that SFPs assume or take home to themselves[53] the risk(s) associated with commercial human space flight as it exists in its current infant status. As such, a reasonably prudent operator will *want* to *express* (put them in writing and in safety briefings) these issues before anyone leaves terra firma (and, according to the law, before money changes hands).[54]

While it's obvious why a potential SFP would want to receive this information, given the rather sobering list of risks associated with space travel as we anticipate it today, the question can be raised as to *why* the operators would want to tell all of this to their clients. In other words, it's probably obvious that if all of this is explained to the potential SFP before he or she agrees to take a flight, the newly educated participant may decline and instead decide to do something else; something less risky. Herein lies the tension between marketing and reality, between legal liabilities and being able to defend oneself in the inevitable event of a catastrophe (or, as they are called in the adventure sports industry – an "incident").[55] It is true that ad-

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[53] "Assumption of the Risk" can serve as a complete defense to a plaintiff's claims. The theory is that a participant may not sue or prevail in a suit for injuries when the person voluntarily exposes themselves to a risk or danger of which they were aware because it was either open and obvious, or because they were warned. If a guest has been adequately informed and warned, a commercial operator can make the argument that the participant assumed or "took home" the risks to themselves. *See* COTTON & JOHN T. WOLOHAN, *supra* note 19, at 79-83, ch. 2.21 (on Defenses Against Liability). *See also*, Catherine Hansen-Stamp & Charles R. (Reb) Gregg, eds., *Assumption of Risks,* III (1) THE OUTDOOR EDUCATION AND RECREATION LAW Q. (Spring 2001).

[54] 14 C.F.R. § 460.45 (2006).

[55] Beyond the fact that an "incident" in space tourism is likely to be a fiery explosion, the industry wide result will also probably be an implosion of sorts. In the adventure sport arena, when a catastrophe happens, often times insurance markets contract and coverage products disappear. When insurance is no longer available, permitting agencies withdraw licensing for adventure activities. Under the new federal regulations for Human Space Flight, liability insurance for third parties (but not for the traveling SFP) is required for operators to obtain a permit. In the current climate of the developing space tourism industry, liability style coverages or products are not yet even avail-

venture travel operators like to produce brochures, websites, video clips and general marketing that shows off their best (and often most attractive) clients traveling or recreating on sunny beautiful days with gorgeous scenery in the background and everyone having a grand time. However, this often unrealistic presentation is a type of visual, or what is known technically in the law as an "express representation" about the activity, and clients will sometimes argue they are entitled to rely on these visual representations in addition to whatever an operator does or doesn't tell them about the activity in the warnings documents.[56] So, while attractive marketing can entice customers, it also is now routinely argued that these visual or, marketing representations are a type of "real" warranty that can void or compete with any other written representations or warnings.[57] The point is, operators have to inject some realism into the product <u>and</u> the marketing they are offering to the public. This also is why exculpatory and warning documents are often given or exchanged before or at the time that money changes hands. If a customer has been lured by the glossy depictions of a pictured or advertised activity, before he or she commits to encountering the risks of that activity, an operator will want to be able to demonstrate that it satisfied it's legal duty to warn of what the *actual* risks of the activity are. Importantly, if an operator wants to be reasonably prudent for the sake of the company – in other words, survive – the operator will want to engage in what is called "risk shifting" in the high risk activities it offers. Risk shifting means getting the participant to accept or take home to themselves the risks associated with the activity so that the operator can offer the activity but not become liable for the risks

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able. The point is that one piece of litigation or outsized claim following an incident or catastrophe can damage the whole industry by destroying the necessary insurance markets. As such, operators should be vigilant *with one another* in ensuring that the federal regulations are followed, that industry standards are articulated and that appropriate legal defenses (WARNINGS) are in place before the industry "takes off."

[56] *See, e.g.*, Brooks v. Timberline Tours, 127 F. 3d 1273 (10th Cir. Oct. 30, 1997) (wherein Plaintiff argued that the visual representations presented in an advertising brochure breached the agreements in the exculpatory release contract).

[57] *Id.* (wherein the "integration clause" in a release and waiver contract was found to defeat plaintiffs argument that advertising brochure amounted to a breach of warranty contract claim).

associated with participation; in the law this is called "assuming the risk."[58] The theory is that a participant may not sue or prevail in a suit for injuries when a person voluntarily exposes themselves to a risk or danger of which they were aware because it was either open or obvious, or because the person was warned.[59] "Assumption of the Risk" can serve as a complete defense to a plaintiff's claims.[60] If a guest has been adequately informed and warned, a commercial adventure operator can make the (legally defensible) argument that the participant knowingly and voluntarily assumed (took home to themselves) the risks. It is exactly for this (reasonable and prudent) reason that the fledgling space travel adventure industry should want to fully warn SFPs of the myriad risks associated with commercial human space flight. Creating this opportunity to effectively shift the risk back to the participant wanting to experience space travel is what Congress and the FAA/AST were trying to accomplish when they codified the "informed consent" requirement for SFPs. If the space tourism operators do a complete and clear job of warning and informing participants of the wide variety of risks associated with space tourism, then when "the incident" does occur, the operators will be able to legally (and morally) argue that the SFP knew of the risks and decided to go anyway, therefore the SFP should bear the result of his or her decision.[61] Conversely, if these risks have not been adequately explained, it is likely that no court or jury is going to absolve this young industry from its failures to warn.[62]

A representative of the developing space industry recently stated that, in deciding whether to buy into the space flight phenomenon, potential SFPs will be looking to industry owners

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[58] 14 C.F.R. § 460.65 (2006); 49 U.S.C. § 70105(b)(5)(A-C) (Supp. 2004).

[59] *See* COTTON & JOHN T. WOLOHAN, *supra* note 19, 79-83, at ch. 2.21 (on Defenses Against Liability). *See also*, Catherine Hansen-Stamp & Charles R. (Reb) Gregg, eds., *Assumption of Risks,* III (1) THE OUTDOOR EDUCATION AND RECREATION LAW Q. (Spring 2001).

[60] *Id*.

[61] Again, it is necessary to point out that acknowledgement or assumption of risk, absent a release and waiver style *contract*, is simply a common law type of defense or argument.

[62] Note also that "assumption of the risk" is but one of the legal defenses that will be expressed in a well drafted exculpatory document. *See supra* note 35.

or personnel for "proxy votes."[63] In other words, SFPs will be making decisions on whether to ride in a space vehicle or not based on whether owners or operators of the space liners themselves will use or ride in them. Plainly put – to suggest that SFPs should be looking at making their decisions as to whether to travel on one of the new space liners based on what someone else (i.e. – a financially invested operator) is doing is not a reasonably prudent suggestion and very clearly misses the point or legal realities of "informed consent" and "assumption of the risk." This industry in particular, because of its *legal* obligations to warn and because of its undoubted need to shift the risk of the activity back to the participant should not be heard to make this analogy or encourage this line of thinking. SFPs should be informed and warned so that they can make intelligent decisions *on their own behalf* and thereby *assume the risks* of participating. If it wants to be reasonably prudent – and legally defensible – the folks *within* this industry should not suggest a mere lemming type of analysis (you follow me off this cliff...) for those considering going to space. The space operators should tell you *everything*, including the fact that, once they have warned the day lights out of you, you will likely be the only one (legally) responsible for taking on the risks of human spaceflight. That's what the operators should be telling you.[64] Again, as the FAA/AST Associate Administrator recently said, the regulation on commercial human space flight "...boils down to making sure any passenger intending to make a suborbital flight is fully informed ... based on the *best and most extensive* information available."[65] (Emphasis added.)

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[63] Cathy Booth Thomas, *The Space Cowboys,* TIME, Feb. 22, 2007, *available at* http://www.time.com/time/magazine/article/0,9171,1592834,00.html.

[64] Additionally, these warnings should be put in the form of a Release, Waiver and Acknowledgment of Risk *contract* (exculpatory document). *See supra* notes 35 & 61. But, that's a whole other article…

[65] *See supra* note 16.