

**AWARE OF THE HAZARDS**

**Remarks by**

**Patricia Grace Smith**

**Associate Administrator  
Office of Commercial Space Transportation  
Federal Aviation Administration**

**International Association for the Advancement of Space Safety  
Conference**

**Chicago, Illinois  
May 14, 2007**

**This morning I invite you to join me in a candid look at commercial rockets and an industry building toward passenger-carrying suborbital flights.**

**Let me begin with three clear words.**

**Rockets are dangerous.**

**That's why they are handled with respect, carefully monitored and checked in every detail. Safety governs every aspect of launching rockets from the mechanics and propulsion of the vehicle, to its trajectory, to protective arrangements on the ground.**

**And that's what will happen at the marquee level when a launch vehicle is actually ready for an operational mission with passengers aboard.**

**Well before that day arrives, years of analysis, development, testing, redesign, adjustment and additional testing will have taken place. In fact, all those things are already underway in the industry.**

**By the time a private launch vehicle leaves the ground with passengers, a dangerous rocket will be as safe as humans can make it. And even if everything about the launch is nominal, all concerned will still search for ways to make the rocket even safer next time.**

**This industry has safety in its marrow as the central imperative, understanding that if the industry is to survive and prosper it must be known for a thing safely done.**

**Still, given human nature, we all know that perfection is not possible. No matter what we do, there will be accidents and eventually someone will die. In fact, by way of illustration, let me say a few words here about aviation, more specifically, the so-called Golden Age of Aviation.**

**If you think of the Golden Age as extending from the 1927 flight of Charles Lindbergh to the pre-war year of 1940, it was a time of great advancement in the sky and public marvel on the ground ... along with some lingering skepticism.**

**The numbers say why.**

**In the 1920s, 31 of the first 40 airmail pilots were killed in crashes. Civil Aeronautics Administration figures for the years 1927 to 1940 show that fatalities totaled more than 5,000 or an average of 359 per year ... nearly one life a day.**

**Little wonder that the American Film Institute Catalog of Films for the 1930s shows that while 130 of the pictures made during those years featured airplanes ... 110 of those featured airplane crashes.**

**Aviation was not a fail-safe proposition. But that didn't stifle the industry or dampen the appetite for flight.**

**In 1932, over 45 million airplane miles were flown in the United States involving 474,000 passengers. By 1940, nearly 120 million airplane miles were flown in this country, involving well over 2.9 million passengers. That is upwards of three times as many miles and a six-fold increase in passengers within just eight years.**

**People were determined to fly.**

**And they did it in that zone of tension between the quest for adventure and progress ... and the passion for self-preservation. There was not an exact balance. Millions flew. Thousands died. Aviation went on.**

**Perhaps one of the reasons aviation continued despite its uneven record in the early years is that it was not so difficult for the public to see that airplanes could get someone or some thing some where, faster. In other words, airplanes were very clearly a form of transportation with an emerging level of acceptance.**

**In our own time, we make our travel choices among vehicles knowing that they all have historical accident and fatality rates. We already know that trains sometimes derail, airplanes sometimes crash, boats sometimes sink, and whether in our neighborhood or on a super highway, cars crash everyday.**

**In a society as mobile as ours, people are going to travel even though they are well aware that regardless of their choice, hazards are involved.**

**So what about rockets?**

**Today, in its infancy, private human space flight is not seen as a form of transportation. It is widely seen as pure experience infused with risk. While the longer view of space tourism is something evolving into an actual space transportation system, the only view that matters for now is the one we have of an enterprise in its infancy.**

**This infant of travel is rocket powered. If thrust is greater than lift for the vehicle during its powered ascent, it's a rocket.**

**Every person who has ever ridden a rocket knew in advance that it could take you very far, very fast ... or everywhere at once in a moment of catastrophe. Danger and drama are the companions of rocket launches. Many continue to view private human space flight as a novelty item, a high-cost, high-risk way to fulfill an ambition.**

**Moreover, private human space flight is about to debut in a country made more compact by technology. We are today a wired nation, eager and accustomed to instant information where visions of both success and setback in all areas of American life are available immediately on line.**

**So private human space flight holds an unprecedented position, with the stage to itself and the world watching and some things to consider.**

- **It is not yet seen as transportation.**
- **Many see it as risky and some as reckless.**
- **It arrives at a time when the country is electronically equipped to shine the spotlight of instant public judgment on anything that goes wrong.**
- **It is an industry whose legitimacy depends on being as open about risk as it is intense about safety.**

**All these things make private human space flight unique, a magnet for growing attention even before scheduled flights actually begin.**

**With all that as background, with all of that putting private human space flight squarely in the public eye as perhaps no means of transport has ever been before, we face the fact that, one day, someone will die in a space flight accident.**

**When that day comes, there will be questions ... lots of them. There will be investigations by the launch operator. Federal authorities will be involved as well as others.**

**The media will raise questions. They will come in many forms and almost certainly range the spectrum from judicious and probing to the opinions of those who may have been skeptical from the outset.**

**We will hear the views of the public on the Internet where both good fortune and misfortune are subject to a full 360 review at all times. Some will say stop now. Some will say go on. Either way, we will need to listen to their reasons.**

**The United States Congress, which approved the Commercial Space Launch Amendments Act of 2004, will want the facts. They will want to know if the FAA ... the regulatory authority ... did all it could, if we are doing all we can, and what more we can do in the interest of safety.**

**How we answer the many questions when a rocket incident results in the death of a passenger or crew, how the industry answers, will shape the future of private human opportunity to experience space flight.**

***What should guide those who must answer the questions? What should be my guide?***

**Tell the truth. Tell every piece of it. Tell it all as soon as it is known. Answer without guile or veneer.**

**Find the cause or causes. Explain what you find in clear, everyday language.**

**Fix what did not work. Test what you fixed and fly again.**

**Whatever the findings, the information must withstand public scrutiny. People will not accept rhetoric as a substitute for finding out what happened and what is to follow.**

**It comes down to this. The only way to address questions from the public is to keep in mind that we are ALL the public. When something goes wrong, tell us what, why and how to make it work next time.**

**Those who stand before the cameras to answer the questions need to put themselves on the living room side of the TV screen. What will you want to know? What will it take to satisfy you that the vehicles should be allowed to continue flying?**

**I have had countless contacts and long experience with the men and women of this industry and I am confident that this is exactly how they will react in the face of adversity.**

**The same experience tells me that nothing is more important to them than safety ... in the same way nothing is more important to those of us at the FAA. I have heard industry leaders say they will not be bound by some magic minimum number of test flights. They say they will fly passengers when they are satisfied the launch vehicle is as safe as they can make it regardless of how long it takes.**

**This regard for safety is the highest virtue in an industry already notable for its skill in science, innovation, and hard work.**

**We have advantages that early aviation did not have. Aviation began well before there were legislative and regulatory standards to help channel its development. For private human space flight, the early guidelines have already been established, ... including the indispensable idea of informed consent where any prospective passenger must be fully advised of the risk in advance and the operator must assess that the prospective space traveler/passenger is cognizant of the risk.**

**People are determined to do this thing, to fly in space.**

**Seventy years ago, Amelia Earhart wrote this on the subject of flying: “Please know that I am aware of the hazards. I want to do it because I want to do it.” She went on to say that if failure should occur, the “failure must be a challenge to others.”**

**Amelia Earhart did not survive the Golden Age. But in her own pioneering way, she helped make possible the tomorrow of adventure that is the promise of private human space flight, and ultimately space transportation.**

**That exact adventure is very near. The commitment to safety is as deep and thorough as humans can make it, but the risk is ever present. The point is, you will be able to decide for yourself: take a suborbital flight into space if you want to, mindful that if you do, there is risk involved as you reach for your dream. The choice is up to you.**

**And when you put the words “space flight” in the same context with the words “the choice is up to you,” it underscores what a remarkable time in history this really is.**

**Thank you very much.**