STATEMENT OF DR. GEORGE C. NIELD, ASSOCIATE ADMINISTRATOR FOR THE OFFICE OF COMMERCIAL SPACE TRANSPORTATION, FEDERAL AVIATION ADMINISTRATION, BEFORE THE HOUSE OF REPRESENTATIVES, COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE, SUBCOMMITTEE ON AVIATION, ON COMMERCIAL SPACE TRANSPORTATION, DECEMBER 2, 2009.

Chairman Costello, Ranking Member Petri, and Members of the Subcommittee:

Good morning. Thank you for inviting me to participate in this hearing to update the subcommittee on the activities of the Federal Aviation Administration (FAA) related to commercial space transportation. Today I will briefly summarize the history, mission, and range of responsibilities assigned to the organization I oversee, the FAA's Office of Commercial Space Transportation (AST). I will then review some of our major accomplishments since the enactment of the Commercial Space Launch Amendments Act of 2004, which established a framework for the future of commercial spaceflight as it continues to evolve in this country. It is important to point out that the work the FAA does today is clearly the direct result of the forward-looking action of Congress, and the leadership and support of senior management at both the Department of Transportation and the FAA, under the current direction of Administrator Randy Babbitt. Finally, I will mention two key challenges that we expect to face in the years ahead.

Spaceflight is changing. Once the exclusive province of two nations and managed by their governments, other nations are now active in space at the same time that new, entrepreneurial efforts are complementing the work of existing commercial launch operators. Suborbital flights and low-Earth orbit operations have attracted the interest of

new space entrants with designs on both payload services and access to space for private citizens. Collectively, the commercial space industry represents a diverse, dedicated, and innovative group of men and women who make the science of launching rockets their daily work, with safety the rule that guides them.

While all this amounts to a new day in spaceflight, it follows on the heels of more than two decades of commercial space transportation development and activity. AST was established by Executive Order in 1984 and was originally located in the Office of the Secretary of Transportation. In November of 1995, AST was transferred to the FAA, where today it is one of four lines of business, along with Aviation Safety, Airports, and the Air Traffic Organization.

Our most critical mission is carrying out our statutory charge of ensuring public safety during commercial launch and reentry activities. We do this in a number of ways. First, we issue launch licenses, experimental permits, and safety approvals. Since March of 1989, there have been 200 licensed launches, with the most recent being the launch of an Atlas V from Cape Canaveral on November 23, 2009. During all of those launches, there have been no accidents that have resulted in fatalities or significant property damage to the public. However, in the event of a serious accident, we are prepared. There is a memorandum of understanding (MOU) among the FAA, the United States Air Force, and the National Transportation Safety Board regarding commercial space accidents and incidents. This MOU outlines agreed-upon matters between the agencies, including

notification procedures, accident/incident definitions, investigation primacy, and shared training opportunities.

AST also issues licenses for the operation of launch sites, or "spaceports." Since 1996, AST has issued site operator licenses for seven spaceports: California Spaceport at Vandenberg Air Force Base; Spaceport Florida at Cape Canaveral Air Force Station; the Mid-Atlantic Regional Spaceport at Wallops Flight Facility in Virginia; Mojave Air and Space Port in California; Kodiak Launch Complex on Kodiak Island, Alaska; the Oklahoma Spaceport, in Burns Flat, Oklahoma; and Spaceport America, near Las Cruces, New Mexico.

Second, we develop and issue regulations that are designed to ensure that commercial launch and reentry activities are conducted safely. Finally, we perform safety inspections in conjunction with all licensed and permitted launches, to ensure that operations are conducted in accordance with those regulations.

As a result of the Commercial Space Launch Amendments Act of 2004, the FAA has acquired additional responsibilities for regulating commercial human spaceflight. There were two main rulemaking efforts to implement that Act. The first involved setting standards for testing new space vehicles. As Congress directed, the FAA on April 6, 2007 issued a Final Rule on Experimental Permits for Reusable Suborbital Rockets. The regulations establish an experimental permit regime modeled on the experimental airworthiness certificates that are issued for aircraft. Experimental permits may be used

for reusable suborbital rockets involved in testing, training, and data gathering missions. The aim is to streamline the approval process for research and development activities. A vehicle operating under a permit may not carry people or property for compensation or hire.

The second rulemaking involved standards for rocket launches carrying people. On February 13, 2007, the FAA Final Rule on Human Space Flight Requirements for Crew and Space Flight Participants became effective. It treats the crew as part of the flight safety system, which means that operators are required to protect the crew in order to protect the general public. It identifies performance requirements for environmental control and life support systems, smoke detection and fire suppression, and human factors, as well as the need for a verification program. In accordance with the statute, the regulations also use the term "space flight participant" rather than "passenger," to underscore the fact that private citizens making suborbital flights will encounter an elevated level of risk and, therefore, will fly under a policy of informed consent. Participants must be briefed verbally and in writing about the risks involved; be required to sign a document indicating that the risks have been communicated and understood; and then, and only then, board the craft.

These regulations were cornerstone results of the 2004 legislation, but not the only important outcomes. Congress also mandated an independent study on Human Space Flight Safety. The final report for that effort was issued on November 11, 2008. Among other conclusions reached in that report, it said: "Initial regulation must strike a balance

between establishing a regulatory regime that allows and encourages private risk taking and investment, while still protecting the uninvolved public …" It is challenging work, but we give it everything we have every day.

Over the last 25 years, the FAA has developed a strong and supportive partnership with the United States Air Force, which is responsible for leading our nation's national security space activities. In August 2006, after the completion of a multi-year process involving telecons, working group sessions, and public meetings, the FAA issued a final rule establishing common launch safety standards with the Air Force. The rule was designed to make sure that whether a rocket is carrying a telecommunications satellite or a payload for the Department of Defense, the same basic requirements for public safety will still apply.

More recently, in August of 2009, Administrator Babbitt approved the creation of a Commercial Space Transportation Center of Excellence to conduct research in the areas of Space Traffic Management and Operations; Launch Vehicle Systems; Human Space Flight; and Space Commerce. We hope that the Center will allow students and faculty members from all over the country to become involved in space-related research that will benefit both industry and the government.

In the five years since adoption of the Commercial Space Launch Amendments Act, the commercial space industry has come a long way. But we know the way ahead is filled with challenges and unknowns. For example, the National Aeronautics and Space

Administration (NASA) is currently in the process of retiring the Space Shuttle, with just five more launches on the schedule. After the Shuttle's retirement, commercial launches licensed by the FAA will be a key part of the plan for delivery of equipment and supplies to the International Space Station. In fact, we are currently working very closely with both Orbital Sciences Corporation and Space X, the companies that have been selected to perform these resupply activities, on their planned operations.

A second key challenge is based on the fact that we are currently on the threshold of a new era in space transportation: commercial human space flight, and specifically, suborbital space tourism. The X-Prize winning flight of SpaceShipOne in 2004 awakened the nation to the potential for both a new space-related market and a new way of doing space business. Today, our office is working with a number of different companies, each of which is in the process of designing, building, and testing rocket-powered vehicles capable of carrying people to the edge of space, where they will be able to look out at the black sky above, see the curvature of the Earth below, and experience the magic of weightlessness. We know that not all of the companies engaged in this effort will be successful. Some will encounter technical difficulties. Others will have financial challenges. But I am quite confident that we will soon be seeing both test flights and operations involving a variety of reusable launch vehicle concepts.

America's spaceflight effort is not a monolith. It involves NASA, the Air Force, the FAA and the commercial space transportation industry. Likewise, the industry itself is not a monolith. It is a blend of established operators and entrepreneurial newcomers. Its

aims involve both payloads and people, both suborbital flights and missions to low-Earth orbit. And it is important to note that interest in space transportation is not just limited to the United States. Although only a handful of countries have demonstrated the ability to successfully launch rockets into space, many others have begun voicing their aspirations to reap the very same national security benefits, technological spin-offs, economic rewards, and public inspiration that we have enjoyed in the U.S. since the beginning of the space age more than 50 years ago.

With the potential for vigorous competition emerging among commercial space transportation providers around the world, the FAA appreciates the recent action taken by the House in passing H.R. 3819, a three-year extension to what is often referred to as "indemnification authority." We would strongly support similar action in the Senate before the December 31st expiration of the current regime. While a three-year extension is needed now to prevent a lapse in the program, we believe that a longer-term extension in the future would be extremely beneficial. It would facilitate long-term planning and investment by the industry during what is expected to be a significant growth period, without interfering with Congress' ability to revisit this issue at a later time to determine whether the current policy is still appropriate.

The Office of Commercial Space Transportation has a two-fold mission consistent with both enabling the industry and keeping it operating safely. In addition to our safety role, as our governing statute directs, our office is charged with the responsibility to encourage, facilitate, and promote the commercial space industry. We do that in a variety

of ways. For example, we develop market forecasts, launch reports, and economic impact assessments. Additionally, we conduct pre-application consultations, host workshops, and publish guides and advisory circulars to assist launch operators in understanding our regulations and how to comply with them. We also work with other government agencies to identify policies which may have an unintended adverse impact on commercialization efforts.

At the FAA, safety -- helping to safeguard the public during launch operations -- is the core of our mission that shapes our days and guides our work. As the Commercial Space Launch Amendments Act of 2004 directs, the Secretary of Transportation "shall encourage, facilitate, and promote the continuous improvement of the safety of launch vehicles designed to carry humans…." With that in mind, I want to conclude today by briefly sharing our perspective on safety in commercial human spaceflight.

First, much as I wish it were, safety is not an absolute. Climbing aboard a rocket carries with it the potential for unfavorable results. So safety must override assumptions, shortcuts and the potentially false and dangerous sense that "what has always worked before is bound to work again." Safety is a mindset, a professional tension where all the people involved in providing a rocket trip are constantly on alert, determined to get it right this time, next time, all the time.

Second, even at that high order of readiness, safety does not, nor can it ever, immunize anyone against unforeseen harm. Misfortune will always be an uninvited possibility

whenever a rocket launches. At the FAA, we never forget that. It is a compelling fact that reinforces our commitment to safety, and leads us to check and recheck, and if necessary, even re-think what we do and how we do it.

Third, and finally, I want to assure you that the people of the FAA are passionate about safety and are always aware of the hazards associated with the serious work for which we are responsible. It is a thrill to be part of safely expanding the frontiers of spaceflight, a challenge to excel at it, and an honor to have the chance.

Chairman Costello, Ranking Member Petri, Members of the Subcommittee, this concludes my prepared remarks. At the appropriate time, I would be pleased to answer any questions you might have.