



**Committee on Transportation and Infrastructure
U.S. House of Representatives**

Washington, DC 20515

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June 17, 2016

SUMMARY OF SUBJECT MATTER

TO: Members, Subcommittee on Aviation
FROM: Staff, Subcommittee on Aviation
RE: Subcommittee Hearing on “FAA Oversight of Commercial Space Transportation”

PURPOSE

The Subcommittee on Aviation will meet on Wednesday, June 22, 2016, at 10:00 a.m. in 2167 Rayburn House Office Building to explore issues related to the Federal Aviation Administration’s oversight of the commercial space transportation industry. The Subcommittee will receive testimony from the Federal Aviation Administration (FAA), members of the Commercial Space Transportation Advisory Committee, and representatives of the commercial space transportation industry.

BACKGROUND

This decade has been one of tremendous change for the commercial space transportation industry, and the U.S. space industry in general. With the retirement of the Space Shuttle in 2011, the United States has been left without a domestic option to transport humans into space, requiring the National Aeronautics and Space Administration (NASA) to pay millions of dollars per seat on Russian spacecraft for astronauts to reach the International Space Station. Private industry, with the support of NASA and the FAA, has worked to fill this transportation gap while developing new and innovative methods to transport passengers and cargo safely and efficiently into space. As these public and private efforts progress, ensuring that FAA’s oversight and regulation of the industry creates the conditions for continued U.S. leadership in the field of commercial space transportation is of great interest to the Subcommittee.

Office of Commercial Space Transportation

Under the 1984 Commercial Space Launch Act and subsequent amendments, the Secretary of Transportation has the responsibility and authority to facilitate, regulate, and

promote the commercial space launch industry.¹ In 1984, this function was assigned to the newly established Office of Commercial Space Transportation (AST) as part of the Office of the Secretary of Transportation (OST).² In November 1995, AST was transferred to the Federal Aviation Administration (FAA). AST is led by the Associate Administrator for Commercial Space Transportation who reports directly to the FAA Administrator.³

According to the FAA, the AST's mission "is to ensure protection of the public, property, and the national security and foreign policy interests of the United States during commercial launch or reentry activities, and to encourage, facilitate, and promote U.S. commercial space transportation."⁴ AST issues launch and reentry licenses for commercial space launches and permits for experimental launches. Each process includes opportunities for pre-application consultation. The consultations allow AST and industry to work collaboratively to ensure regulatory compliance and facilitate the timely approval of commercial space launch applications. Since 1989, FAA has licensed 246 commercial space launches and permitted 42 launches.⁵

Since fiscal year 2009, AST's budget has grown from \$14.094 million to \$17.8 million while its staffing has increased from 71 full time positions (FTPs) to 106 FTPs.⁶ AST began systematically measuring its workload metrics in August 2014. Since that time, the number of companies seeking at least one new or modified authorization has increased from 14 to 44 while the total number of authorization projects in all phases prior to the issuance of a license or permit increased from 26 to 66.⁷ FAA has requested a fiscal year 2017 budget of \$19.826 and a staffing increase of 13 FTPs for AST.⁸

Safety

The human commercial space transportation industry continues to mature within a regulatory "learning period" first established under the 2004 Commercial Space Launch Amendments Act.⁹ Currently, the FAA may not implement regulations regarding spacecraft design or operation. The industry currently operates under an informed consent model, in which participants must acknowledge the inherent risks of spaceflight and the absence of government safety regulations. Notwithstanding this moratorium, the FAA may "issue requirements or

¹ See the 1984 Commercial Space Launch Act (P.L. 98-575), the 1988 Commercial Space Launch Act Amendments (P.L. 100-657), the 1998 Commercial Space Act (P.L. 105-303), the 2004 Commercial Space Launch Amendments Act (P.L. 108-492), and the 2015 US Commercial Space Launch Competitiveness Act (P.L. 114-90).

² AST is the acronym assigned to the FAA's Office of Commercial Space and was not the office's designation when it was part of the Department of Transportation

³ FAA, "About the Office: Office of Commercial Space Transportation," available at https://www.faa.gov/about/office_org/headquarters_offices/ast/about/

⁴ Ibid.

⁵ Permitting statistics are measured from 2006, available at http://www.faa.gov/data_research/commercial_space_data/

⁶ FAA Budget Estimates for Fiscal Year 2010 and 2017.

⁷ FAA Briefing to Aviation Subcommittee Staff (May 16, 2016).

⁸ FAA Budget Estimates for Fiscal Year 2017.

⁹ 51 U.S.C. § 50905(c)(9).

regulations to protect the public health and safety, safety of property, national security interests, and foreign policy interests of the United States.”¹⁰

The learning period was most recently extended by the 2015 U.S. Commercial Launch Competitiveness Act (CLCA) through fiscal year 2023. The CLCA also structured a process by which the commercial space transportation industry and the FAA would jointly create interim voluntary industry consensus standards that will ultimately form the basis of future regulations. Furthermore, the law contains several reporting requirements that will serve as benchmarks for measuring industry maturity and the scope of future regulations.

While the commercial space industry has heeded Congress’ calls to work toward consensus safety standards, two incidents in 2014 highlight the safety challenges inherent to commercial space transportation. On October 28, 2014, an Antares 130 rocket operated by Orbital Sciences under an FAA license exploded fifteen seconds after launch from the Mid-Atlantic Spaceport at the Wallops Flight Facility in Wallops Island, Virginia. The explosion destroyed a Cygnus spacecraft scheduled to resupply the International Space Station and caused substantial damage to the launch pad.

Three days later, on October 31, 2014, a test flight of SpaceShipTwo operated by Scaled Composites under an FAA commercial space experimental permit crashed in New Mexico, killing co-pilot Michael Alsbury and severely injuring pilot Peter Siebold. This was the first in-flight fatality as a result of a crash of a spacecraft operated under an FAA commercial space license or permit.

Both incidents demonstrate the nascence of the commercial space transportation industry and also the continued necessity of public-private cooperation to lay the foundation for a future regulatory framework. The FAA can both maximize safety and foster a vibrant and competitive industry by working with the private sector in fora such as the Commercial Space Transportation Advisory Committee (COMSTAC). The COMSTAC has served to instill a robust safety culture within the commercial space transportation industry in the absence of formal regulation.

Integration into the National Airspace System

As the number of commercial space launches and reentries become more routine, safer and more efficient methods of integrating their operations into the National Airspace System (NAS) will be needed. Currently, commercial space transportation is “accommodated” within the NAS rather than integrated into it, requiring the blocking of massive amounts of airspace over several hours and disruption of commercial aviation traffic. This process is not automated, requiring FAA employees, including air traffic controllers, to call each other on the telephone to read out spacecraft trajectories.

The FAA is creating a Space Data Integrator that will feed commercial spacecraft data into FAA systems, including the Traffic Flow Management System Traffic Situational Display.¹¹

¹⁰ 51 U.S.C. § 50905(c)(10).

¹¹ FAA Briefing to Aviation Subcommittee Staff (May 16, 2016).

The FAA is also developing a Commercial Space Integration Roadmap to better define its “policies, regulations, procedures, and automation capabilities moving forward.”¹²

Spaceports

There are 22 active launch and reentry sites in the United States.¹³ AST is responsible for licensing 10 commercial launch and reentry sites, also known as spaceports.¹⁴ However, AST does not license or oversee the eight Federal launch sites or the non-profit launch site operated by the University of Alaska. There are three additional launch sites from which AST licensed and permitted launches occur, but because the three are owned, operated, and exclusively used by a single private company each, they do not require an AST spaceport license. Of the ten licensed spaceports, the most active is located at the Cape Canaveral Complex in Florida, from which eight licensed launches have occurred in fiscal year 2016.

Indemnification

The current commercial space launch insurance regime relies on a risk-sharing system to limit the exposure of commercial space companies using FAA licenses and protect the industry against catastrophic loss. Licensees are required to obtain \$500 million in liability insurance covering private third party claims and \$100 million in liability insurance covering claims by the government for property destruction.¹⁵ In the event private third party claims exceed the \$500 million requirement, the government (subject to appropriations) will cover the additional claims up to \$1.5 billion in 1989 dollars.¹⁶

This indemnification regime has been in place since the passage of the 1988 Commercial Space Launch Act Amendments. To date, the risk-sharing indemnification regime has not been invoked. The indemnification regime has been extended eight times since its original enactment, most recently by the CLCA through the end of fiscal year 2025.¹⁷ The CLCA also requires the Government Accountability Office to report on the potential inclusion of State and municipal property in the existing indemnification regime.¹⁸

¹² Michael Whittaker, “As Commercial Space Takes Off, FAA Moves from Accommodation to Integration,” Department of Transportation, February 11, 2016, available at <https://www.transportation.gov/fastlane/faa-moves-to-integrate-commercial-space>.

¹³ “The Annual Compendium of Commercial Space Transportation: 2016,” FAA, January 2016, available at https://www.faa.gov/about/office_org/headquarters_offices/ast/media/2016_Compndium.pdf; One of these 19 sites is the Ronald Reagan Ballistic Missile Defense Test Site, located in the Marshall Islands. The Marshall Islands are a sovereign country that has entered into a Compact of Free Association with the United States.

¹⁴ One of these 19 sites is the Ronald Reagan Ballistic Missile Defense Test Site located in the Marshall Islands, a now sovereign country that has entered into a Compact of Free Association with the United States.

¹⁵ 51 U.S.C. § 50914(a).

¹⁶ 51 U.S.C. § 50915(a).

¹⁷ S. Rept. 114-88; P.L. 114-90, § 102(d)

¹⁸ P.L. 114-90, § 115

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