

STATEMENT OF DR. GEORGE C. NIELD, ASSOCIATE ADMINISTRATOR FOR COMMERCIAL SPACE TRANSPORTATION OF THE FEDERAL AVIATION ADMINISTRATION, BEFORE THE HOUSE COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY, SUBCOMMITTEE ON SPACE, ON NECESSARY UPDATES TO THE COMMERCIAL SPACE LAUNCH ACT, FEBRUARY 4, 2014.

Chairman Palazzo, Ranking Member Edwards, and Distinguished Members of the Subcommittee:

Thank you for inviting me to speak with you today. Since I last testified before the Subcommittee in 2012, United States commercial space transportation activity has increased significantly, and operations have become more advanced. In Fiscal Year 2013, launches licensed and permitted by the FAA grew six-fold over FY 2012 to a total of 18. Just last month, three commercial launches took place within the week of January 6 – 10, with missions by SpaceX, Orbital Sciences Corporation, and a suborbital flight test of SpaceShipTwo by Scaled Composites. This equaled the number of licensed and permitted launches in FY 2012. The prospects for continued growth are solid. For example, SpaceX has nearly 50 committed launches on its manifest.

SpaceX's Dragon and Orbital Sciences' Cygnus successfully demonstrated Commercial Resupply Services (CRS) to the International Space Station for NASA. SpaceX plans to conduct a third CRS mission this month. SpaceX also launched its first mission to geosynchronous orbit in December 2013.

Sierra Nevada, Boeing, and SpaceX are developing new vehicles to carry people to and from the International Space Station in competition for NASA's Commercial Crew Program. Bigelow Aerospace has entered into a Space Act Agreement with NASA to

connect its expandable activity module (BEAM) to the International Space Station next year. BEAM will be transported to the International Space Station by SpaceX's Dragon, and will join the two Bigelow demonstration habitats already on-orbit.

Suborbital activities will include continued testing, and more flights are planned for this year. Virgin Galactic and XCOR Aerospace have signed up nearly one thousand potential participants. Yet, space tourism is just the tip of the iceberg. Potential suborbital missions include training, aerospace technology testing, media and public relations uses, educational outreach, and satellite deployment. New ideas and plans come our way with increasing frequency. The FAA Office of Commercial Space Transportation has about 25 on-going "pre-application consultations." This number includes proposals for new vehicles, new spaceports, safety approvals and requests for payload reviews. All of these indicators are a sign of U.S. industry growth.

Progress brings challenges. The November 2013 National Space Transportation Policy (NSTP) reaffirmed the Administration's continued commitment to maintain America's competitiveness in the aerospace sector to ensure the United States will stay on the cutting edge by maintaining space transportation capabilities that are innovative, reliable, efficient, competitive, and affordable and that support U.S. interests. Maintaining an assured capability to meet U.S. Government needs, while also taking the necessary steps to strengthen U.S. competitiveness in the international commercial launch market is important to ensuring that U.S. space transportation capabilities will be reliable, robust, safe, and affordable in the future. Securing public safety in commercial space

transportation is a vital FAA mission. The viability of commercial space transportation depends on safety, as do all activities in Earth's orbit, as well as the prospects of continued safe access to space.

Orbital Transportation Safety

The FAA has begun a dialogue with its stakeholders to explore the need for adjustments to the FAA's statutory authority with the advent of commercial on-orbit space transportation. Cargo delivery to the ISS by SpaceX's Dragon and Orbital Sciences' Cygnus is now done by private industry. Capabilities continue to advance. As the prospects for a greater number of commercial transportation vehicles in space increase, it is time to consider closing the current regulatory and safety gap between launch and reentry.

Everything on orbit is in motion. The complex environment of Earth's orbit includes spacecraft, satellites, and orbital debris traveling at hyper-velocities. On average, collisions in low Earth orbit (LEO) occur at a closure rate of over 22,000 miles per hour. Collisions between orbital debris, satellites and spacecraft pose serious safety risks to persons and property in space and the safe operations of orbital systems. Collisions can lead to an exponential increase in space debris, increasing the threat to other operations.

For example, in 2009, the collision between a U.S.-based satellite and a Russian satellite was followed by a measurable increase in tracked orbital debris. Debris from the event

was estimated to remain in orbit for years to come. NASA reported that in October 2013 over 800 cataloged objects, including 10 percent spacecraft, one-third rocket bodies, and the rest miscellaneous debris, posed a potential threat to the International Space Station. This represented a 60 percent increase from the number of tracked objects that were viewed as a potential threat to the Space Station in November 1998. The continued generation of debris threatens the long-term sustainability of space and creates an immediate risk to manned and unmanned space operations. As space capabilities continue to advance, and as the prospects for a greater number of objects in space increase, certainty in planning for collision avoidance on-orbit becomes ever more critical.

The FAA believes it is time to explore orbital safety of commercial space transportation under the Commercial Space Launch Act licensing regime. The FAA's experience with collision avoidance includes conducting analysis and implementing orbital debris mitigation practices consistent with international standards, but these are limited to commercial launch and reentry activities. The NSTP recognizes the importance of the FAA's responsibility to execute exclusive authority in this area, and we are committed to carrying out the policy and ensuring the safety of launch and reentry. We work with launch and reentry operators on a daily basis. We conduct payload reviews to determine whether the payload complies with all requirements of United States law related to launching or reentering the payload, and that all licenses, authorizations, or permits are obtained for the payload, or that it is otherwise safe. Should the FAA authority be increased, we would work to ensure appropriate levels of orbital safety are maintained in

addition to our responsibilities of licensing launch and reentry. The goal would be for the FAA to address orbital transportation safety, including for orbital debris mitigation, for spacecraft whose primary function was transportation.

In November 2013 the FAA Administrator publicly recognized the impacts increased commercial space activities will have on the National Airspace System (NAS). The FAA is working to improve the facilitation and integration of space operations into NAS planning. Increased certainty and capability to assess and manage on-orbit safety would also facilitate NAS planning. Finally, assigning an Agency on-orbit authority would also help protect the U.S. Government from liability exposure, just as it is now protected during FAA licensed launches.

International Outreach

An increasing number of foreign countries are developing and improving space capabilities. This will contribute to increases of foreign space activity, some of which may occur in orbit. Foreign efforts include commercial space transportation activities and opportunities. Some countries are developing spaceports to accommodate potential U.S. and international suborbital vehicles. Others are interested in privatizing existing expendable launch vehicles and enabling oversight of commercial activities. With this activity, other countries are looking to develop their own laws and regulations governing in space travel. As leaders in commercial space, we must engage with the international community and shape international standards to improve safety.

The 2013 National Space Transportation policy instructs the Secretary of Transportation and other appropriate department and agency heads to advocate internationally for the adoption of United States Government safety regulations, standards, and licensing measures to enhance global interoperability and safety of international commercial space transportation activities. This builds on similar guidance from the 2010 National Space Policy. Enhancing global leadership in safety is a priority of the FAA Administrator.

As the U.S. space transportation industry began to market suborbital services internationally, the Office of Commercial Space Transportation created an international outreach program to promote the adoption of U.S. commercial space transportation regulatory approach. The goals of this program are to: 1) assist U.S. industry activity outside the United States, 2) provide U.S. international leadership, 3) establish international relationships, and 4) prepare for future interoperability between countries. To that end, the FAA has met and discussed in detail U.S. law and FAA regulations with representatives from nations across the globe.

Through our international outreach, we have found that the FAA Office of Commercial Space Transportation is unique. However, we do not have the only approach in commercial space transportation safety. A lot of work lies ahead as we increase cooperation with other countries and multi-national entities. We hope that in the future, as the industry develops new capabilities, that our efforts in these new areas will serve as models for the rest of the world to adopt.

Benefit of Continued Certainty

Last month's reauthorization of the provision for the conditional payment of excess third-party claims by the United States Government through 2016 will benefit U.S. industry by putting U.S. companies on a more equal footing with international competitors that offer indemnification. In accordance with the 2013 NSTP, the FAA supports the continuation of the current liability risk-sharing regime for U.S. commercial space transportation activities. Increased certainty over the integrity of the liability risk-sharing regime is integral to long-term planning, particularly by potential customers that must plan years in advance of launch.

Finally, we wanted to let the subcommittee know that our partnership with NASA on its commercial activities is proceeding very smoothly. We strongly support the Administration's requested changes to the Commercial Space Launch Act that would add a third category of occupants called government astronauts. The changes would complement our existing definitions of crew and spaceflight participants, and would increase transparency and ease the administration of our regulations in the context of NASA astronauts serving as crew.

Mr. Chairman, this concludes my prepared remarks. I would be pleased to answer any questions you may have.