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ENHANCING SAFETY AND REGULATIONS FOR COMMERCIAL SPACE TRANSPORTATION WITH SPACE NUCLEAR SYSTEMS IN THE UNITED STATES

Abstract

The rapid growth of the commercial space sector, including increased launches and satellites, requires a comprehensive regulatory approach to ensure safety. Although small in numbers today, new space nuclear systems, operated by the commercial sector, are among these new activities. In October 2023, the US Department of Transportation's Federal Aviation Administration (FAA) issued an Advisory Circular (AC), "Launch and Reentry of Space Nuclear Systems." The AC provides comprehensive guidance for applicants through the launch and reentry licensing process when space nuclear systems are present. The AC also applies to applicants seeking an independent payload determination.

In the United States, commercial launches/reentries and spaceport operations are regulated by the Federal Aviation Administration's (FAA) Office of Commercial Space Transportation. With over 600 commercial launches and over 40 commercial reentries licensed since 1989, the FAA has played a pivotal role in regulating commercial space activities in the US. The FAA has regulatory authority for the launch or reentry of any radionuclide, emphasizing the safeguarding of public safety, safety of property, and alignment with national and international interests. Launch or reentry of space nuclear systems necessitates the most comprehensive of reviews by government because of the high risk to public safety.

This paper presents FAA's initial efforts to enhance public safety in US commercial space transportation as it relates to space nuclear systems and advances it further to take into account future challenges and opportunities for international collaboration.