

**[4910-13]**

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**FAA-1999-6574**

**Small-Scale Rockets**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of public meeting.

**SUMMARY:** The FAA announces an on-line public forum on the Internet to solicit comments and information from the public on the regulation of launches of small-scale rockets. Based on information received, the FAA may initiate rulemaking to redefine the scope of launch activities that would not require FAA licensing. The FAA is also considering a simplified launch license (light-license) for designated classes of launch activities. This on-line public forum is intended to aid the FAA in its regulatory effort by receiving early input from the affected community.

**DATES:** The on-line public forum will begin on February 28, 2000, at 9 a.m. EST and end on March 10, 2000, at 4:30 p.m. EST. Written comments submitted to the docket must be received no later than March 24, 2000.

**ADDRESSES:** The on-line public forum can be reached by clicking the "On-Line Public Forum" hyperlink on the Associate Administrator for Commercial Space Transportation's (AST) Internet home page, <http://ast.faa.gov>, or going directly to <http://ast.faa.gov/publicforum>.

Persons who are unable to participate in the on-line public forum and wish to submit written comments may mail or deliver their comments in duplicate to: U.S.

Department of Transportation Dockets, Docket No. FAA-1999-6574, 400 Seventh Street, SW., Room Plaza 401, Washington, DC 20590. Comments may also be sent electronically to the Documents Management System (DMS) at the following Internet address: <http://dms.dot.gov/> no later than March 24, 2000. Written comments, other than those provided during the on-line public forum, may be filed and/or examined in Room PL 401 between 10 a.m. and 5 p.m. weekdays except Federal holidays. Written comments to the docket will receive the same consideration as statements made during the on-line public forum.

**FOR FURTHER INFORMATION CONTACT:** J. Randall Repcheck, Licensing and Safety Division, Commercial Space Transportation, (202) 267-8379, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, DC 20591; or Ms. Esta M. Rosenberg, Attorney-Advisor, Regulations Division, Office of the Chief Counsel, (202) 366-9320.

**SUPPLEMENTARY INFORMATION:** The on-line public forum will allow near real-time electronic discussion on the regulatory aspects of small-scale rockets. The discussion will allow a large cross-section of the interested public to share views with each other and the FAA, and assist the FAA in redefining the regulatory framework for small-scale rocket activities.

## Background

Under 49 U.S.C. Subtitle IX, ch. 701, popularly referred to as the Commercial Space Launch Act of 1984, as amended (CSLA or the Act), any person proposing to launch a launch vehicle within the United States, and any U.S. citizen proposing to launch a launch vehicle outside the United States, must obtain a license authorizing the launch. 49 U.S.C. 70104(a). The FAA authorizes launches by the private sector to protect public health and safety, safety of property, and national security interests and foreign policy interests of the United States.

Regulations implementing the Act were issued in a final rule on April 4, 1988. The 1988 final rule, Commercial Space Transportation Licensing Regulations, 14 CFR Ch. III, exempted certain small-scale rocket activities from licensing requirements. In the preamble to the 1988 final rule, the Office of Commercial Space Transportation (OCST), the predecessor office within the Department of Transportation responsible for carrying out the authority of the Secretary under the Act, explained that Congress did not intend the CSLA to encompass small-scale rocket launches from private sites conducted for recreational or educational purposes. The OCST stated that these types of launches do not warrant licensing and regulatory oversight under the CSLA.<sup>1</sup>

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<sup>1</sup> As explained in the preamble of the 1988 final rule:

[OCST's] licensing policies and procedures have been developed primarily for ... commercial expendable launch vehicle (ELV) launches. However, consistent with the legislative history of the Act, the Office's regulatory guidance also provides adequate supervision for any other non-Federal launch activity. Thus, launch activities falling within the scope of the Office's authority may include activities conducted for experimental, developmental, or research purposes as well as those conducted without any apparent profit motive.

At the same time, neither the Act nor its legislative history evinces an intention to require licenses for small scale rocket launches conducted for recreational or educational purposes at private sites. These launches, which number annually in the millions, are currently subject to state and local

In the 1988 final rule, launches of small-scale rockets of limited performance were termed "amateur rocket activities." Under 14 CFR 401.5, a launch constituting an amateur rocket activity is one which takes place from a private site and involves a rocket that meets all three of the following criteria:

- the rocket motor(s) has a total impulse of 200,000 pound-seconds or less; and
- the rocket motor(s) has a total burning time or operating time of less than 15 seconds; and
- the rocket has a ballistic coefficient - i.e., gross weight in pounds divided by frontal area of rocket vehicle - less than 12 pounds per square inch.

Small-scale rocket technology has emerged since 1988 such that the regulatory definition of "amateur rocket activities" may inadequately define the full range of rocket activities that may be excluded from FAA launch licensing because they do not pose sufficient risk to public health and safety and safety of property to warrant FAA licensing. Conversely, the current definition may exclude from FAA licensing certain launch activities that pose sufficient risk to public health and safety and safety of property as to warrant FAA licensing. This mismatching of the definition of "amateur rocket activities" with current small-scale rocket activities is due to a number of developments since 1988, including:

- 1) Small-scale launch vehicles that meet the criteria listed under the definition of "amateur rocket activities" in 14 CFR Part 401 have become more powerful and

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regulation, self-regulation by the organizations sponsoring these activities, and Federal airspace requirements. These existing guidelines and requirements have been effective for purposes of protecting public safety and any other national interest that may be associated with these activities.

53 FR 11004, 11007.

sophisticated. These vehicles can achieve higher performance levels than anticipated under the current definition of "amateur rocket activity." Higher performance can lead to the ability to reach greater altitudes and travel greater distances resulting in greater risk to public health and safety and safety of property.

- 2) A number of small-scale launch vehicles are being developed and launched using liquid propellants. Even though these vehicles may not have the size or power to warrant FAA licensing, they may have a burn time of 15 seconds or more and therefore do not meet a criterion of "amateur rocket activities." Under the current regulations, a person wishing to launch a liquid-propelled launch vehicle with a burn time of 15 seconds or greater would require a license or would have to apply to the FAA to waive the requirement for a license.
- 3) New commercial launch concepts often begin with developmental tests using prototypes or other test vehicles. Some test vehicles are relatively powerful, but have limited altitude or range capability. Launches of these vehicles may not meet the definition of amateur rocket activities. However, launch vehicles that have limited altitude and range can be contained within a controlled area without using a flight safety system. Thus, only minimal safety measures are needed to protect the public from launch hazards.

## **New Regulatory Initiative**

The FAA is considering two issues. The first is the need to redefine the scope of small-scale launch activities that may be conducted without an FAA license. Small-scale rocket technology has advanced over the years beyond that contemplated in the existing definition. FAA licensing may be necessary for certain small-scale rocket activities not currently licensed under the CSLA. Conversely, certain launch activities that do not currently meet the definition of "amateur rocket activity" may not require FAA licensing for reasons previously explained.

The second issue the FAA is considering is whether to establish a new launch licensing procedure entailing fewer application requirements or licensee responsibilities than those currently codified as part of the FAA's launch licensing provisions. 14 CFR Parts 413 and 415. This "light-license" would be appropriate for certain small-scale rocket activities that pose unacceptable risk to persons and property absent the use of certain essential safety standards. A "light-license" would ensure, with minimal burden, that launch operators take appropriate safety precautions to protect public health and safety and the safety of property.<sup>2</sup>

Identifying activities within these two classes, unlicensed and "light-licensed," is complicated because of the diversity of activities, the wide range of launch vehicles used, and the number and variety of launch sites used. The on-line public forum will enable the FAA to solicit information from hobbyists, educators, rocket organizations, launch companies with developmental or test vehicles, state and local government agencies that

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<sup>2</sup> The FAA has the authority to waive certain requirements for a license. Thus, today, the FAA can simplify the current licensing process on a case-by-case basis. However, it would be more efficient for the FAA and

regulate various aspects of rocketry, private land owners whose land is used for rocket launches, and the general public.

The FAA hopes that an on-line public forum that allows the public to discuss diverse issues amongst themselves and with the FAA will provide the agency with information on which the FAA can formulate regulatory alternatives.

### **Information Requested**

The FAA solicits on-line discussion and written comments on the questions below and any other ideas the public may have. Note that all of the FAA's regulatory decisions must be made with an understanding of the costs and benefits of its actions. Therefore, the FAA requests that commenters include estimates of costs for any proposal they recommend.

1) What existing and future launch activities could be conducted without FAA licensing? What criteria could be used to define these activities? Possible criteria include -

- The total impulse of the rocket's motors;
- The maximum altitude the rocket can reach;
- The physical size of the rocket;
- The materials used to construct the rocket;
- Whether professionally manufactured rocket motors are used;
- Whether the rocket's propulsion system uses liquid, solid, or hybrid propellant;
- Whether toxic propellants are used;
- The size and location of the launch site; and
- Whether the rocket is launched from a balloon or other airborne platform.

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the public if a streamlined licensing process can be established with requirements tailored to a clearly defined class of launch activity.

- 2) What existing and future launch activities would be appropriate for a "light-license?" What criteria could be used to define these activities? Should similar criteria be used as in question (1) but with higher thresholds?
- 3) For launch activities that are appropriate for a "light-license," what standards or safety measures should be required as a matter of FAA licensing requirements to ensure public health and safety and the safety of property? Possible safety measures include -
  - The use of trajectory and dispersion analyses during the planning stages of a launch;
  - Analyzing the risks to the public during the planning stages of a launch;
  - Determining and establishing hazard areas to contain launch hazards; and
  - Using "wind weighting" to ensure the launch vehicle flies within established hazard areas.
- 4) What would be an appropriate application process for a "light-license?" Would standard forms be helpful? Would electronic submission be helpful?
- 5) What else, not addressed above, should the FAA consider?

### **On-Line Public Forum**

The public can join the on-line public forum by clicking the "On-Line Public Forum" hyperlink on the Associate Administrator for Commercial Space Transportation's (AST) Internet home page, <http://ast.faa.gov>, or going directly to <http://ast.faa.gov/publicforum>.

The FAA will monitor public comments throughout the two-week forum. The FAA may ask clarifying questions of commenters. The FAA will not make any commitments or draw any conclusions during the open docket period.

Issued in Washington, DC on December 23, 1999.

/S/

Joseph A. Hawkins  
Acting Associate Administrator for  
Commercial Space Transportation.