review copies at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA; or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal-register/cfr/ibr-locations.html.*

TABLE D.—INCORPORATION BY REFERENCE

Alert Service Bulletin No.	Page No.	Revision	Date
CF34–AL S/B 72–A0231 Total Pages: 94	All	Original	March 7, 2007.
CF34–AL S/B 72–A0233 Total Pages: 91	All	2	March 22, 2007
CF34–BJ S/B 72–A0212 Total Pages: 95	All	2	March 22, 2007

Issued in Burlington, Massachusetts, on March 30, 2007.

Peter A. White,

Acting Manager, Engine and Propeller Directorate, Aircraft Certification Service.

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Parts 401, 404, 405, 406, 413, 415, 420, 431, and 437

[Docket No.: FAA–2006–24197; Amendment Nos. 401–5, 404–4, 405–3, 406–4, 413–9, 420–3, 431–2, 437–0]

RIN 2120–AI56

Experimental Permits for Reusable Suborbital Rockets

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The Federal Aviation Administration (FAA) is amending its commercial space transportation regulations under the Commercial Space Launch Amendments Act of 2004. The FAA is establishing application requirements for an operator of a manned or unmanned reusable suborbital rocket to obtain an experimental permit. The FAA is also establishing operating requirements and restrictions on launch and reentry of reusable suborbital rockets operated under a permit.

DATES: These amendments become effective June 5, 2007.

FOR FURTHER INFORMATION CONTACT: Randy Repcheck, Office of Commercial Space Transportation, Systems Engineering and Training Division, AST–300, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, DC 20591; telephone (202) 267–8760; facsimile (202) 267–5463, e-mail *randy.repcheck@faa.gov.* For legal information, contact Laura Montgomery, Senior Attorney, Office of the Chief Counsel, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, DC 20591; telephone (202) 267–3150; facsimile (202) 267–7971, e-mail *laura.montgomery@faa.gov.*

SUPPLEMENTARY INFORMATION:

Availability of Rulemaking Documents

You can get an electronic copy using the Internet by:

(1) Searching the Department of Transportation's electronic Docket Management System (DMS) web page (*http://dms.dot.gov/search*);

(2) Visiting the FAA's Regulations and Policies web page at *http://www.faa.gov/regulations_policies/*; or

(3) Accessing the Government Printing Office's web page at *http://www.gpoaccess.gov/fr/index.html.*

You can also get a copy by sending a request to the Federal Aviation Administration, Office of Rulemaking, ARM–1, 800 Independence Avenue SW., Washington, DC 20591, or by calling (202) 267–9680. Make sure to identify the amendment number or docket number of this rulemaking.

Anyone is able to search the electronic form of all comments received into any of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). You may review DOT's complete Privacy Act statement in the **Federal Register** published on April 11, 2000 (Volume 65, Number 70; Pages 19477–78) or you may visit *http://dms.dot.gov.*

Small Business Regulatory Enforcement Fairness Act

The Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996 requires the FAA to comply with small entity requests for information or advice about compliance with statutes and regulations within its jurisdiction. If you are a small entity and you have a question regarding this document, you may contact the person listed under **FOR FURTHER INFORMATION CONTACT**. You can find out more about SBREFA on the Internet at *http://www.faa.gov/regulations_policies/rulemaking/sbre_act/*.

Authority for This Rulemaking

The FAA's authority to issue rules regarding space transportation safety is found under the general rulemaking authority, 49 U.S.C. 322(a), of the Secretary of Transportation to carry out 49 U.S.C. Subtitle IX, chapter 701, 49 U.S.C. 70101–70121 (Chapter 701). Also, the recently enacted Commercial Space Launch Amendments Act of 2004 (the CSLAA) mandates this rulemaking through section 70105a, which creates the FAA's new permit authority, and section 70120, which requires that this rulemaking be complete by June 23, 2006. If the FAA does not issue a final rule by December 23, 2007, Congress prohibits the FAA from issuing any permits for launch or reentry until the final regulations are issued.

I. Background

Chapter 701 authorizes the Secretary of Transportation and, through delegations, the FAA's Associate Administrator for Commercial Space Transportation, to oversee, authorize, and regulate both launches and reentries of launch and reentry vehicles, and the operation of launch and reentry sites when carried out by U.S. citizens or within the United States. 49 U.S.C. 70104, 70105, 70105a; U.S. Federal Aviation Administration, Commercial Space Transportation Delegations of Authority, N1100.240 (Nov. 21, 1995). Chapter 701 directs the FAA to exercise this responsibility consistent with public health and safety, safety of property, and the national security and foreign policy interests of the United States, and to encourage, facilitate, and promote commercial space launch and reentry by the private sector. 49 U.S.C. 70103, 70105, 70105a.

On December 23, 2004, President Bush signed into law the Commercial

Space Launch Amendments Act of 2004 (CSLAA). The CSLAA changes current law in several significant ways. One such change, which establishes an experimental permit regime for manned and unmanned developmental reusable suborbital rockets, is the subject of this rulemaking. The FAA is implementing other terms of the CSLAA in a companion rule, ''Human Space Flight Requirements for Crew and Space Flight Participants'' 71 FR 75616 (Dec. 15, 2006).

A permit provides an alternative to licensing for operators of reusable suborbital rockets. The CSLAA defines a suborbital rocket as a vehicle, rocket-propelled in whole or in part, intended for flight on a suborbital trajectory, and the thrust of which is greater than its lift for the majority of the rocket-powered portion of ascent. 49 U.S.C. 70102. To be eligible for an experimental permit, a reusable suborbital rocket may only be flown for the following purposes:

- Research and development to test new design concepts, new equipment, or new operating techniques,
- Showing compliance with requirements to obtain a license under Chapter 701, or
- Crew training before obtaining a license for the same design. 49 U.S.C. 70105a(d).

The reusable suborbital rocket must also be flown on a suborbital trajectory, which the CSLAA defines as the intentional flight path of a launch vehicle, reentry vehicle, or any portion thereof, whose vacuum instantaneous impact point (the location on Earth where a vehicle would impact if it were to fail, calculated in the absence of atmospheric drag effects) does not leave the surface of the Earth. 49 U.S.C. 70102.

On March 31, 2006, the FAA published a notice of proposed rulemaking (NPRM) containing proposed requirements for operators of experimental reusable suborbital rockets. Experimental Permits for Reusable Suborbital Rockets, 71 FR 16251 (Mar. 31, 2006). In the notice, the FAA proposed part 437, which contains requirements for obtaining and operating under an experimental permit. The FAA also proposed changes to existing regulations to reflect the agency's new authority to issue permits.

II. Description of Final Rule and Discussion of Comments

The FAA received comments from 12 entities, including aerospace companies, associations, individuals, service providers, and other agencies of the U.S. Government. Aerospace companies who provided comments include Blue Origin, LLC (Blue Origin), Masten Space Systems (Masten), the Personal Spaceflight Federation [1] (Federation), Rocketplane Limited, Inc. (Rocketplane), and XCOR Aerospace (XCOR). The following associations, individuals, and service providers also commented: Beyond Earth Enterprises (Beyond Earth), Paul T. Breed, Air Line Pilots Association International (ALPA), the National Association of Rocketry, Spaceport Associates, SpaceShot, Inc. (SpaceShot). The FAA also received consolidated comments from Tripoli Rocketry Association, Experimental Rocketry of the Pacific, Stratofox Aerospace Tracking Team, and a number of individuals from those organizations (Tripoli).

In general, the commenters supported the proposed requirements, but with several suggested changes to what the FAA proposed in its NPRM. Permit requirements and the comments addressing them are discussed in section A below.[2] Changes to other regulations as proposed in the NPRM are discussed in section B.

A. Part 437—Experimental Permits

1. Eligibility for an Experimental Permit

Section 437.5 contains the eligibility requirements for an experimental permit. As proposed in the NPRM, the FAA will issue a permit for the launch or reentry of a reusable suborbital rocket only for research and development, demonstrating compliance with FAA license requirements or crew training.

a. Reentry

A suborbital rocket may engage in reentry.[3] For most suborbital launches, whether the flight entails a reentry will not matter from a regulatory perspective. The FAA will authorize the flight under a single license or permit, implementing safety requirements suitable to the safety issues involved. Recognizing suborbital reentry matters for two reasons. First, if a suborbital rocket is flown from a foreign country by a foreign entity into the United States, that entity may require a reentry license or permit from the FAA, depending on whether the planned trajectory of the rocket includes flight in outer space. Second, a permanent site that supports the landing of suborbital rockets may now be considered a reentry site depending, once again, on whether the planned trajectory reaches outer space.

Blue Origin notes that use of ''reentry'' to describe descent of a suborbital vehicle entails a change in FAA's regulatory terminology. The FAA previously took the position that suborbital rockets do not ''reenter'' and are not ''reentry vehicles.'' This change is made necessary by the CSLAA. As acknowledged by Blue Origin, the CSLAA describes suborbital rockets as reentering. *See* 49 U.S.C. 70105(b)(4). Congress made clear that a suborbital rocket can ''reenter'' for purposes of licensing or permitting.

Blue Origin stated that treating a suborbital mission in part as a ''reentry'' creates definitional inconsistency under Chapter 701. In particular, it points to the definition of ''reenter'' and ''launch.'' Reenter means ''to return or attempt to return, purposefully, a reentry vehicle and its payload, crew, or space flight participants, if any, from Earth orbit or from outer space to Earth.'' 49 U.S.C. 70102(13). Blue Origin stated that a suborbital reusable launch vehicle (RLV) is neither in ''orbit'' nor in ''outer space.''

It is not necessary to reach orbit to be in outer space. Outer space has yet to be defined, but is commonly understood to mean something more than orbit. Although a suborbital rocket does not reach the velocity necessary to orbit the Earth, the vehicle can reach altitudes sufficient to be considered outer space. With respect to the term ''launch,'' the FAA proposed in the NPRM that for a suborbital RLV, ''flight ends after vehicle landing or impact on Earth, and after activities necessary to return the reusable suborbital rocket to a safe condition on the ground end.'' Blue Origin pointed out that this definition fails to account for ''reentry.'' The FAA agrees, and now defines launch to end ''after reaching apogee if the flight includes a reentry, or otherwise after vehicle landing or impact on Earth and after activities necessary to return the reusable suborbital rocket to a safe

[1] The Federation is a non-profit trade association consisting of companies whose business involves or will involve commercial human space flight. The Federation provided consensus comments on the NPRM and consists of the following entities: Air Launch, Armadillo Aerospace, Bigelow Aerospace, Mojave Spaceport, RocketPlane Limited, Inc., Scaled Composites, Space Adventures, SpaceDev, Space Explorations Technologies Corporation (SpaceX), The SpaceShip Company, XCOR Aerospace, the X PRIZE Foundation, and Virgin Galactic.

[2] The FAA is adopting the following sections without modification from what it proposed in the NPRM: §§ 437.1, 437.9, 437.13, 437.15, 437.17, 437.27, 437.29, 437.31, 437.35, 437.37, 437.39, 437.41, 437.59, 437.75, 437.81, 437.83, 437.87, and 437.93. Sections 437.27, 437.29, 437.31, 437.33, 437.35, 437.37, 437.39, and 437.41 require that an applicant demonstrate satisfaction of subpart C safety requirements by providing the FAA with operational safety documentation. These requirements remain the same as proposed in the NPRM, except for § 437.33, which was modified to be consistent with § 437.61.

[3] Historically, the FAA has treated the whole of a suborbital operation as a launch because it did not obtain reentry authority until 1998.

condition on the ground.'' This definition thus accounts for the two types of suborbital rockets: those that reenter and those that do not. Because Congress defines reentry as, in relevant part, the return of a reentry vehicle ''from Earth orbit or from outer space to Earth,'' a suborbital rocket that reaches outer space reenters as part of its mission. Suborbital rockets that do not reach outer space are treated as just launching and landing.

Lastly, Blue Origin stated that this change has other regulatory implications, particularly for financial responsibility. These implications have been covered in a companion rulemaking on human space flight and financial responsibility 71 FR 75616 (Dec. 15, 2006).

b. Amateur Rocketry

Tripoli Rocketry Association requested that any amateur rocketry project of its members that exceeded the thresholds for amateur rocket activity be covered under the experimental permit regime. To that end, Tripoli suggested that the FAA include ''non-profit rocketry research, education, recreation, and sporting competition projects'' as eligible for a permit under § 437.5. Paul T. Breed would like the experimental permit rules to apply to non-reusable expendable flights, including launches of sounding rockets. The FAA is bound by the restrictions of Congress, which plainly defined the eligibility requirements by statute. Whether any particular rocketry project can be covered under an experimental permit regime depends on whether the rocket in question is a reusable suborbital rocket, and whether the purpose of the flight program meets the requirements of § 437.5. The FAA thus cannot accommodate Tripoli's request to make recreation and sporting competition projects eligible for permits. Similarly, Congress determined that expendable launch vehicles, including sounding rockets, are not eligible for a permit.

c. Foreign Entities

Spaceport Associates recommended that the FAA re-examine the applicability of FAA space transportation regulations to U.S. citizens or U.S. entities outside the United States. It believes that the requirement for FAA authorization might prevent foreign operators from using American spacecraft or personnel in creating their own domestic space tourism operations. This, in turn, would reduce the market opportunity for U.S. manufacturers of suborbital spacecraft. This requirement is governed by statute. Under 49 U.S.C. 70104(a), a U.S. citizen must obtain a license or permit to launch, regardless of whether he does so outside the United States or not.

d. Single License or Permit

For operators of vehicles that have characteristics common to both rockets and aircraft, the CSLAA's definitions of suborbital rocket and suborbital trajectory establish the circumstances under which the operator will be required to conduct vehicle flights under an experimental permit or launch license, rather than through a special airworthiness certificate in the experimental category (referred to as experimental airworthiness certificates for the remainder of this discussion). The FAA noted in the NPRM that for some vehicles an operator could conduct early test flights, including glide tests or flights under jet power only, under a special airworthiness certificate, before transitioning to an experimental permit. 71 FR 16252. The Federation requested that the FAA further emphasize that reusable suborbital rocket operators and developers will not be required to obtain an experimental airworthiness certificate to obtain a permit or license.

The Federation is correct that reusable suborbital rocket operators and developers will not be required to obtain an experimental airworthiness certificate to obtain a permit or license. However, an operator cannot fly under a permit or license unless its vehicle is a reusable suborbital rocket or otherwise subject to Chapter 701. A suborbital rocket is a vehicle, rocket-propelled in whole or in part, intended for flight on a suborbital trajectory, and the thrust of which is greater than its lift for the majority of the rocket-powered portion of ascent. 49 U.S.C. 70102(19). If an operator plans to fly its vehicle as a suborbital rocket, the operator must fly it in accordance with the requirements of an experimental permit or license.

The Federation also asked that the FAA clarify that it will not require someone to obtain a permit to obtain a license. A permit is not a prerequisite for a license. Nonetheless, data obtained while operating under a permit may be useful in applying for a license.

2. Scope of an Experimental Permit

Section 437.7 states that an experimental permit authorizes launch and reentry of a reusable suborbital rocket, as proposed in the NPRM. The authorization includes pre- and post-flight ground operations. A permit could be issued for a launch, a reentry, or both a launch and a reentry.

Paul T. Breed asked that the FAA distinguish between manned vehicles and unmanned vehicles. The requirements do make these distinctions. Part 437 of 14 CFR applies whether a vehicle is manned or unmanned. If a person is on board a permitted vehicle, 14 CFR part 461 contains added requirements.

3. Duration of an Experimental Permit

As proposed in the NPRM, § 437.11 provides that an experimental permit will last one year from the date of issuance. Spaceport Associates and Blue Origin questioned whether one year was long enough to complete a flight test program, and proposed a duration of 18 months or longer.

As the FAA has learned in its licensing program, combining a specific end date for an authorization with the ability to renew allows the FAA and a vehicle operator to re-examine the assumptions that went into and the requirements arising out of the earlier determination. The FAA chose a one-year permit because of the dynamic nature of a flight test program. A flight test program will likely result in design and operational changes. The FAA also based the term on experimental airworthiness certificates used for aircraft, consistent with Congress's desire for the FAA to model experimental permits after experimental airworthiness certificates. An experimental airworthiness certificate for research and development and showing compliance with regulations is effective for one year or less after the date of issuance. 14 CFR 21.181(a)(4).

The duration of an experimental permit does not need to be longer, because a permittee may obtain a renewal. If the permittee has been operating in compliance with the regulations and terms and conditions of its permit, it should not be difficult to obtain a renewal. To avoid any disruption to the schedule, a permittee should apply for renewal at least 60 days before its permit expires, in accordance with 14 CFR 413.23.

4. General Application Requirements for Obtaining an Experimental Permit

Section 437.21 requires an applicant to make demonstrations and provide information in order to obtain a permit. These requirements include demonstrating compliance with part 437; providing enough information for the FAA to analyze the environmental impacts associated with a proposed launch or reentry; providing information for the FAA to conduct a maximum probable loss analysis under part 440; complying with human space flight requirements under part 460; and making each reusable suborbital rocket

to be flown available to the FAA for inspection. Section 437.21 also states that if an applicant proposes to use any launch vehicle, reentry vehicle, safety system, process, service, or personnel for which the FAA has issued a safety approval under part 414 of this subchapter, the FAA will not reevaluate that safety element to the extent its use is within its approved envelope.[4]

a. Private Use Launch Site

In 2000, the FAA announced that a launch licensee who operated a private site for its own launches did not need a license to operate a launch site. The FAA announced in the NPRM that it had to revisit this issue for both licenses and permits. The FAA proposed that a reusable suborbital rocket operator operating a private launch site that contains permanent facilities or supports continuous operations would have to obtain a launch site operator license in accordance with part 420.

Several commenters objected to the FAA's proposed change in policy. According to Blue Origin, the Federation, and XCOR, the FAA should impose requirements related to the operation of a launch site through a launch license or permit. They objected not to the safety issues themselves but to having to satisfy part 420 in its entirety.

The FAA has decided against adopting the proposed change in this rulemaking. Today's rule addresses launches conducted under a permit rather than a license, and the agency believes the rulemaking should be limited to those differences. Because the proposed change in policy would apply to all private launch sites, the FAA has determined that any change in policy is more appropriately addressed by a separate rulemaking. The FAA will consider the comments submitted to the NPRM in evaluating whether a change to part 420 is merited.

b. Use of Safety Approval

Section 437.21(c) states that the FAA will not evaluate those portions of an application from an applicant who proposes to use any reusable suborbital rocket, safety system, process, service, or personnel for which the FAA has issued a safety approval under part 414. Although the FAA did not obtain any comment regarding safety approvals, the FAA is adopting this provision as part of 437.21 to clarify that an applicant for a permit may rely on a safety approval obtained under part 414.

c. Inspection

As proposed in the NPRM, under § 437.21(c), an applicant must make its reusable suborbital rocket available to the FAA for inspection before the FAA issues an experimental permit. XCOR agreed with the requirement because it believes someone should ''come out and kick the tires and make sure the vehicle isn't a piece of junk.'' Blue Origin recommended that the FAA conduct this inspection before flight rather than before issuing a permit to promote regulatory certainty and predictability, and because the focus of a permit is on the safety of launch and reentry as opposed to certification of the vehicle design. Such an approach, according to Blue Origin, would allow vehicle operators to obtain regulatory approval for a vehicle prior to paying the expense of building the vehicle. The FAA has decided against Blue Origin's approach, because a determination on the safety of the vehicle is difficult to make before the safety systems have been built and verified. Also, the FAA will inspect the vehicle to ensure compliance with application representations.

5. Program Description

Section 437.23 requires an applicant to provide a program description. Under § 437.23(b)(1), a permit applicant must describe all reusable suborbital rocket systems, including any structural, flight control, thermal, pneumatic, hydraulic, propulsion, electrical, environmental control, software and computing systems, avionics, and guidance systems used in the reusable suborbital rocket. In response to a comment from the Federation, this requirement marks a slight change from what the FAA proposed in the NPRM. The requirement recognizes, by the inclusion of ''any'' before the different kinds of systems, that not all vehicles will have all systems.

The Federation recommended that FAA describe the intent of the program description, and clarify the expected level of detail required. As suggested by the Federation, the FAA agrees that the description required for any system is a general overview or basic description of the system. However, when showing compliance with the containment requirements of § 437.31, an applicant will need to provide a more detailed description of any system that has been identified in its hazard analysis as safety critical.

Requiring a description of ''software and computing systems,'' rather than just software systems as proposed in the NPRM, clarifies that computer system hardware, which includes physical devices that assist in the transfer of data and perform logic operations, are included in the description of vehicle systems. Computing systems may include such hardware as central processing units (CPU), busses, display screens, memory cards, or peripherals, and may include stand-alone systems, such as off-the-shelf digital controllers.

6. Flight Test Plan

Section 437.25 requires an applicant to provide a flight test plan. Under § 437.25(a), an applicant must describe any flight test program, including the estimated number of flights and key flight-safety events. For each operating area, an applicant must also provide the maximum altitude it expects the reusable suborbital rocket to reach. This represents a clarification of what the FAA originally proposed. In the NPRM, the FAA proposed to require an applicant to describe the maximum altitude without reference to the operating area.

7. Rest Requirements

As proposed in the NPRM, § 437.51 requires that a permittee comply with crew rest rules. The rules require that vehicle safety operations personnel not work more than 12 consecutive hours, more than a total of 60 hours in the 7 days preceding a permitted activity, or more than 14 consecutive work days.[5] ALPA agreed that prescriptive duty limits are suitable and necessary to mitigate the likelihood of human error related to fatigue. ALPA did not agree, however, that the rules adequately or accurately incorporate principles established by current scientific research and literature.

ALPA cited a June 1987 Report of the Presidential Commission on the Space Shuttle Challenger Accident (The Rogers Report). The Rogers Report noted that a number of authoritative scientific studies have shown: (1) That multiple strings of 11 to 12-hour workdays produce worker fatigue, negatively impact worker effectiveness, and present a threat to public safety; 2) that night work and shift changes produce sleep loss and fatigue by disrupting workers' circadian rhythms; and (3) that shift workers often require a week or

[4] The FAA can issue a safety approval for (1) a launch vehicle, reentry vehicle, safety system, process, service, or any identified component thereof; or (2) qualified and trained personnel, performing a process or function related to licensed launch activities or vehicles. A safety approval is an FAA determination that the defined safety element, when used or employed within a defined envelope, parameter, or situation, will not jeopardize public health and safety of property. 14 CFR 414.3.

[5] In the NPRM, the FAA, as XCOR pointed out, mistakenly said ''and'' rather than ''or.''

more to adapt to new shifts, especially if one of the shifts is a night shift.

ALPA stated that the rules fail to mitigate against these known risks.

First, the proposed rule would allow a string of workdays for vehicle safety operations personnel, with shifts each up to 11 hours and 59 minutes, without any required rest period at all. Second, requiring a ''rest'' period of 8 hours after a 12-hour shift simply fails to provide an adequate period for sleep, increasing the likelihood of both acute and accumulated or chronic, fatigue. Further, the combination of 12 hours on and 8 hours off would tend to generate schedules for safety sensitive personnel based on a 20-hour clock, rather than the 24-hour clock, potentially disrupting the workers' circadian rhythms and introducing a significant potential for fatigue related error. Third, the proposed rule fails to provide any mechanism to compensate for the time period required for workers to readjust to changes in the time of day for commencement of shift work. This lack of time to adapt to a new sleep/wake cycle is a factor that could lead to safety critical tasks being performed during a worker's physiological window of circadian low, a factor that has been scientifically shown to be a major and recurring factor in industrial accidents.

Although the FAA is adopting the requirements as proposed, it does, however, intend to give ALPA's comments and this issue the study and attention they deserve. The FAA would need to assess the cost and operational effects of these changes. The crew rest rules in part 437 are similar to those in part 431 that apply to the licensing of reusable launch vehicle missions. The rest rules were originally based on crew rest requirements imposed by the Air Force at Federal launch ranges. Moreover, the FAA cannot impose more rigorous requirements without providing additional notice and seeking additional comment.

8. Pre-Flight and Post-Flight Operations

Section 437.53 requires a permittee to establish a safety clear zone and verify that the public is outside that zone before and during any hazardous operation. Masten Space Systems recommended that the FAA clarify how this requirement applies to post-flight ''safing'' where the vehicle lands, shuts off its engines, and then waits some period of time before it restarts its engines and takes off again. A permit is not required for operations between flights. Under § 437.53, ''pre-flight'' operation begins when a permittee prepares a reusable suborbital rocket for flight and ''post-flight'' operation ends when a permittee returns the reusable suborbital rocket to a safe condition after flight. In the X Prize Cup's Lunar Lander Challenge and Rocket Racing League examples provided by Masten, post-flight activities would begin once the vehicle is no longer in flight. Pre-flight activities would begin when preparations for the next flight meet the four-part test addressed in the scope of launch. However, operations between landing and take-off may all be covered under a permit if the vehicle is never safed.

9. Hazard Analysis

Section 437.55 requires a permittee to identify and characterize each of the hazards resulting from each permitted flight. An applicant would then assess the risks of each hazard. A pemittee must also carry out the risk elimination and mitigation measures derived from its hazard analysis, and ensure the continued accuracy and validity of its hazard analysis throughout the term of its permit.

The hazard analysis required by § 437.55 must determine the likelihood of occurrence and the potential consequence of each hazard before risk elimination or mitigation. In the NPRM, the FAA proposed that the applicant determine the likelihood of occurrence and consequence for each hazard. It was not clear in the NPRM that the applicant must analyze the risk of each hazard before identifying measures to mitigate or eliminate that risk. This step helps distinguish between those hazards requiring mitigation and those that pose little apparent risk to the public, and allows the operator to focus its system safety effort on the most significant risks to the public.

As part of the hazard analysis required by § 437.55, an applicant must identify and describe the risk elimination and mitigation measures necessary to ensure that the likelihood of adverse consequence of each hazard meets the following criteria:

(A) The likelihood of any hazardous condition that may cause death or serious injury to the public must be extremely remote.

(B) The likelihood of any hazardous condition that may cause major property damage to the public, major safety-critical system damage or reduced capability, a significant reduction in safety margins, or a significant increase in crew workload must be remote.

These qualitative criteria are statements of risk, including both the severity of the consequences and the likelihood. They are necessary to define an acceptable inverse relationship between likelihood and the severity of each hazard. The qualitative criteria are derived from FAA aircraft regulations and standards that the military has historically applied to launch safety. These standards have not quantified the likelihood of a hazard occurring. The probability of some hazards occurring cannot be quantified with certainty. For example, the likelihood of a procedure failing is difficult to quantify prior to obtaining experience with that procedure. The failure rate may not be available for the new systems being created. Even if the aircraft regulations and launch safety requirements assigned quantitative criteria to the likelihood of all hazards, the commercial launch industry is still too new to provide the data necessary for quantitative criteria.

The Federation pointed out that Advisory Circular (AC) 25.1309–1A does not identify all decreased safety margins or all increased workload as areas of concern. Instead, the AC refers only to reductions or increases that are significant. The Federation and XCOR were concerned that they could not meet the proposed requirement that any hazardous condition that could lead to either a decreased safety margin or an increased workload be remote. The FAA did not intend so broad a requirement and is, therefore, requiring that the likelihood of significant changes be remote.

Section 437.55(a)(1)(ii) requires an applicant to identify and describe hazards, including but not limited to software errors, if an operator uses software. XCOR was concerned that this requirement could be used to deny a permit to an applicant whose vehicle used no software, and thus had no software error hazards to describe. The FAA agrees that if the operator does not use software there is no potential for software errors.

Although the FAA requires that a permittee conduct a hazard analysis, the FAA does not require a permittee to have a System Safety Program Plan (SSPP). An SSPP defines the methodology and products of a system safety program. The SSPP helps ensure that safety, consistent with overall system objectives and requirements, is designed into the system. An SSPP can also ensure that methods employed to remove hazards and reduce risks are properly applied and documented, and that changes in system design, configuration, or application are evaluated and analyzed for impacts to overall system safety. Spaceport Associates agreed with the FAA that no SSPP should be required for a permit. While the FAA does not require a SSPP for experimental permits, the FAA strongly encourages an operator to develop its own plan as part of a strong safety culture.

10. Operating Area Containment

As proposed in the NPRM, § 437.57(a) requires that during each permitted flight, a permittee contain its reusable suborbital rocket's instantaneous impact point (IIP) within an operating area and outside any exclusion area. During the application process, an applicant must demonstrate, at a minimum, either that there are physical limits on the ability of the reusable suborbital rocket to leave the operating area, or that an operator will use abort procedures and other safety measures derived from a system safety engineering process to contain the IIP. Section 437.57(b) defines an acceptable operating area, and § 437.57(c) states that the FAA may prohibit a reusable suborbital rocket's IIP from traversing certain areas within an operating area, by designating one or more areas as exclusion areas. These sections are the same as proposed in the NPRM, except for § 437.57(b).

The FAA has clarified § 437.57(b)(3) and (4). Section 437.57(b)(3) requires that an operating area not contain or be adjacent to a densely populated area or large concentrations of members of the public. The reference to large concentrations of members of the public was moved from proposed § 437.57(b)(4) to § 437.57(b)(3) for consistency. Section 437.57(b)(4) now requires that an operating area not contain or be adjacent to significant automobile traffic, railway traffic, or waterborne vessel traffic. This new requirement is important to ensure that hazards associated with a failure do not harm the public, as pointed out by a NASA commenter.

a. Reliability

A representative from NASA recommended during interagency coordination that the FAA require information on the reliability of any system used to ensure containment. Information on reliability can include reliability prediction, reliability test data, and corrective actions taken as a result of operational anomalies. Reliability predictions may not be necessary or valid in all cases. Reliability test data, on the other hand, will likely be developed because of the requirement for verification evidence, which is measurable evidence that safety measures are effective and have been properly implemented. The requirement for verification evidence may be satisfied by the submission of reliability analysis and test data necessary to support an applicant's demonstration of vehicle containment. As stated in the FAA Guide to Reusable Launch and Reentry Vehicle Reliability Analysis, reliability analysis techniques such as Fault Tree Analysis and Reliability Block Diagrams, supplemented by reliability test data, are acceptable approaches for design verification. Therefore, reliability analysis and test methods could be used in verifying containment systems. In addition, § 437.73(b) requires that a permittee report any anomaly (and corrective actions for each anomaly) of any system necessary to keep the vehicle within its operating area. Anomaly reporting is part of a strong reliability engineering effort, and provides the operator and the FAA with added information to evaluate the reliability of those systems.

The NASA representative also noted that the hazards associated with a failure are what should be contained, not the vehicle's instantaneous impact point. NASA defines containment as a ''technique that precludes hazards (such as vehicle, debris, explosive, or toxic) from reaching the public, the workforce, or property in the event of a vehicle failure or other mishap.'' NASA Procedural Requirement 8715.5, Range Safety Program, 29 (Jul. 8 2005). The commenter made a similar comment about § 437.57(b)(1), which requires that an operating area be large enough to contain each planned trajectory and all expected vehicle dispersions. The commenter noted that this requirement seems to imply that it would be acceptable to run a planned instantaneous impact point trajectory right along the boundary of the operating area. The commenter suggested also requiring a margin that accounts for the potential dispersions of debris and any other hazard caused by a vehicle failure. The FAA agrees that what is important for public safety is that hazards are contained, not a rocket's IIP. For this reason, § 437.57(b)(3) mandates that a densely populated area may not be adjacent to an operating area. The separation of the edge of the operating area from densely populated area effectively creates a buffer around an applicant's operating area. That buffer will serve to keep hazards away from the public in the event of a mishap.

b. Operating Area Publication

In the NPRM, the FAA stated that it would publish approved experimental permit operating areas on its Web site. Although XCOR Aerospace agreed with informing the public of potential hazards, it was concerned that doing so might encourage members of the public to converge on that area to watch the flights, potentially creating an unsafe condition. Although the FAA agrees that publication may invite undesirable attention, the FAA believes it is important to inform the public of potential hazardous operations so that they can be aware of potential hazards. In addition, the FAA intends to use its Web site as a repository for locations and characteristics of acceptable operating areas to provide guidance to future applicants proposing operating areas. In this fashion, the operating area list will provide examples of acceptable operating area characteristics, such as amounts of unpopulated and sparsely populated areas and automobile, railway, and waterborne vessel traffic.

c. Definitions of Unpopulated, Sparsely Populated, and Densely Populated Areas

In the NPRM, the FAA requested comments as to whether it should adopt specific definitions for ''unpopulated,'' ''sparsely populated,'' and ''densely populated'' areas for purposes of determining an acceptable operating area. The Federation and XCOR agree that the FAA should not define these terms. The Federation commented that operating areas are site dependent. The Federation's statement is true because similarly sized operating areas with identical total populations may have a different distribution of the population, leading to different risks. Likewise, how the calculations are performed may change the apparent population density. For example, there may be an area of 100 square miles, with all the population clustered in the southeast corner in a town. The density would appear to be low if the population were distributed over the whole 100 square miles. On the other hand, if the operating area were assessed in blocks of one square mile at a time, certain areas would show high density.

Because the FAA wants to gain experience in assessing these questions, the FAA will define these terms on a case-by-case basis for now. However, the FAA may in the future define these terms if experience shows the merits of doing so. Those definitions could be provided as guidance material rather than as a change to the regulation.

d. Risk Criteria: Qualitative or Quantitative

As the FAA discussed in the NPRM, the FAA will not require an applicant to perform a quantitative risk analysis to obtain a permit. This means that a permittee will not have to calculate expected casualty and individual risk, which are the measures of acceptable risk for licensed activities. In their stead, the FAA is mandating qualitative risk criteria under section 437.55(a)(3), containment within an operating area,

risk mitigation measures derived from hazard analyses, and corrective actions that respond to anomalies.

Most commenters agreed with not requiring a permittee to meet quantitative risk criteria. SpaceShot stated that the FAA's current 30 in a million expected casualty criterion is too stringent, even under a launch license. Spaceport Associates agreed that no quantitative risk should be required under a permit because there is not enough real data. Blue Origin agreed with the FAA that the reliability data necessary for a quantitative analysis typically can be obtained by the very research and development testing that Congress intended permits to enable. Blue Origin also considered the approach consistent with the legislative history of the CSLAA, where the FAA was urged to assess the appropriateness of requiring risk calculations for permits, and to explore alternatives. XCOR also agreed that expected casualty was not a proper tool for assessing risk.

The Federation stated that calculating a probability of failure for newly developed reusable suborbital rockets would be extremely difficult, if not impossible. Any vehicle operating under an experimental permit will be testing new technologies and, by definition, will lack the flight history and operational experience needed to determine the probability of failure. Also, the capability of most reusable suborbital rockets to use incremental testing and envelope expansion may provide for a higher probability of success for a vehicle's ultimate design as compared to the initial launches of expendable launch vehicles. For these reasons, the Federation believes it would be inapposite to apply commonly accepted probabilities of failure for expendable launch vehicles to early launches of reusable suborbital rockets.

XCOR suggested that the FAA should encourage applicants to perform quantitative risk analyses and that, if an applicant were to submit such an analysis, the FAA would have to accept it. The FAA agrees that performing valid quantitative risk analyses should be encouraged, even if these analyses are not required to obtain a permit. In addition to the added perspective on safety that these analyses provide, the experience gained in performing such an analysis could prove valuable if the permit applicant wishes to apply for a launch license. However, a quantitative risk analysis is not a substitute for any of the other analyses required to obtain a permit, and the performance and submission of such an analysis does not excuse an applicant from any of the requirements of part 437.

Quantitative risk analysis by itself does not minimize the risk to the uninvolved public. Rather, the decisions made based on the results of the assessment reduce the risk. At this stage, the hazard analysis and the qualitative risk assessment provide the best route to making those informed decisions.

Rocketplane stated that requiring an estimate of the probability of a third-party catastrophic event, which it described as ''expected casualty,'' would ensure adequate safety analyses to minimize the risk to the uninvolved public, especially in the case of flight over a populated area. Rocketplane stated that without an expected casualty calculation, the industry would be subjected to a major setback if an experimental vehicle were to crash and harm members of the public.

Although the FAA shares some of Rocketplane's concerns, it is not practicable to mandate quantitative risk assessments for experimental permits at this time. As discussed in the NPRM, the FAA considered requiring quantitative risk analyses. However, uncertainties in launch vehicle reliability, operating environments, and the consequences of a failure prevent a straightforward application of this analysis technique. The data concerning reliability, operating environment, and consequences typically can be obtained by the very research and development testing that Congress intends permits to enable.

11. Key Flight-Safety Events

''Key flight-safety event'' means a permitted flight activity that has an increased likelihood of causing a launch accident compared with other portions of flight. In the NPRM, the FAA proposed a similar definition, but referred to ''failure'' instead of ''launch accident,'' which is already defined by § 401.5.[6] Under § 437.59, a permittee must conduct any key flight-safety event so that the reusable suborbital rocket's instantaneous impact point, including its expected dispersion, is over an unpopulated or sparsely populated area.

12. Landing and Impact Locations

Section 437.61 requires a permittee to use a landing or impact location that is big enough to contain an impact, including debris dispersion; and that does not contain any members of the public at the time of landing or impact. This requirement applies for nominal landing or any contingency abort landing of a reusable suborbital rocket, or for any nominal or contingency impact or landing of a component of that rocket.

This section is a clarified version of that proposed in the NPRM. It requires an operator to account for nominal or contingency impacts or landings of a rocket component rather than all possible impacts. This clarification should assuage XCOR's concern that the requirement could be interpreted to mean that wherever a component could possibly impact must not contain any members of the public, thus precluding any flight over any members of the public.

XCOR and the Federation were also concerned that this section could be interpreted to mean that a spaceport operator would have to close its spaceport to all other traffic during every flight of a reusable suborbital rocket. They believe that at Mojave Airport, where the FAA has defined the launch site as all active runways, taxiways and hangars, this interpretation would effectively close the airport for the duration of every suborbital rocket flight.[7] This was never the FAA's intent. The requirement says that a landing location has to be big enough to contain impact hazards. The landing or impact location, not the whole launch site, has to be clear of members of the public. A landing area could be a runway. A landing area may or may not include the whole launch site and could simply be a runway. The size of the landing area must be large enough to contain impact hazards in the case of a hard landing or impact at the planned location. An entire spaceport, including hangar areas, would only have to be closed if necessary to contain impact hazards.

[6] A launch accident means:

(1) A fatality or serious injury (as defined in 49 CFR 830.2) to any person who is not associated with the flight;

(2) Any damage estimated to exceed $25,000 to property not associated with the flight that is not located at the launch site or designated recovery area; or

(3) An unplanned event occurring during the flight of a launch vehicle resulting in the known impact of a launch vehicle, its payload or any component thereof:

(i) For an expendable launch vehicle (ELV), outside designated impact limit lines; and

(ii) For an RLV, outside a designated landing site. 14 CFR 401.5.

[7] XCOR raised the closing of runways at Mojave Airport for the landing of SpaceShipOne as an example of the FAA not permitting overflight because of concerns of any impact. The runways were closed not because of potential crashes during overflight as XCOR suggests, but because of the need to account for the debris of a potential impact on landing. Runways that intersected the landing runway also had to be closed so that no planes would enter the landing location.

13. Agreements With Other Entities Involved in a Launch or Reentry

Section 437.63 requires an applicant to have a written agreement with a Federal launch range operator, a licensed launch site operator, or any other party that provides access to or use of property and services required to support the safe launch or reentry under a permit. Although the FAA did not receive a comment about this, the agency is adopting a narrower version of the requirement than originally proposed. In the NPRM, the FAA proposed that the applicant enter into a written agreement with ''* * * any other party that provides access to or use of property and services required to support a permitted flight'' regardless of whether the property or services were required for safety.

Blue Origin commented that the FAA should not require that a permittee enter into such agreements if the permittee intends to use its own launch site exclusively. Such agreements may not be necessary if the private use operator has no need for the property or services of another. However, even operators of private sites may need the safety services of outside parties. For example, a local fire department may be used for emergency response.

When a launch occurs over navigable waters, § 437.63 requires that a permittee enter into and comply with a written agreement between the applicant and the local United States Coast Guard (USCG) district to establish procedures for issuing a Notice to Mariners before flight. In the NPRM, the FAA proposed that this requirement apply to overflight of any water. The Federation and XCOR recommended limiting this requirement to overflight of ''navigable'' water. Because the U.S. Coast Guard only has jurisdiction over navigable water, the FAA is adopting this narrower version. Section 437.63 also requires a written agreement between the applicant and the Air Traffic Control authority with jurisdiction over the airspace through which a flight is to take place, for measures necessary to ensure the safety of aircraft, such as launch notification procedures and limitations on days or times of launches. This is the same as proposed in the NPRM, but now specifically identifies that the agreement must demonstrate satisfaction of §§ 437.69(a) and 437.71(d). This clarification will ensure that the agreement covers the communications and airspace issues addressed in those sections.

14. Collision Avoidance Analysis

Section 437.65 requires a collision avoidance analysis for a suborbital launch with a planned maximum altitude greater than 150 kilometers. A permitted launch may not pass within 200 kilometers of a manned or mannable orbital object throughout flight. Although Spaceport Associates supported a minimum altitude for requiring a collision avoidance analysis, it suggested that the FAA continue to work with the U.S. Strategic Command (USSTRATCOM) to determine an alternate distance, because as flight rates increase it could be more difficult to schedule suborbital flights in general. The FAA consulted with USSTRATCOM during the development of the NPRM and intends to continue the partnership to explore methods of improving the process as activity increases. Efforts are underway to modernize the collision avoidance analysis. Meanwhile, the FAA will continue to allow an applicant to propose an alternate distance, provided the distance demonstrates an equivalent level of safety and accounts for all uncertainties.

15. Tracking a Reusable Suborbital Rocket

Under § 437.67, a permittee must, during permitted flight, measure in real time the position and velocity of its reusable suborbital rocket. This is a change from the NPRM, which proposed that a permittee provide Air Traffic Control with the ability to know the real time position and velocity of the reusable suborbital rocket while operating in the National Airspace System. The purpose of this proposal was to allow Air Traffic Control to track a permitted vehicle if it were to fly outside its operating area. The proposal prompted opposition from Blue Origin, the Federation, and XCOR. Blue Origin commented that the proposed tracking and data requirements may not be possible to fulfill for short duration, low-altitude testing, and asked that the FAA not mandate such tracking.

The Federation and XCOR had no objection, in principle, to being required to make real time position and velocity information available to Air Traffic Control, but felt they could not accept responsibility for what Air Traffic Control did, or failed to do, with the information. Nor, the Federation pointed out, could permittees be responsible for overcoming the limitations of the air traffic control system, or for fulfilling a technical requirement if no technology was available at a reasonable price.

The Federation noted that the most likely method of complying with the proposed requirement was to use a standard, commercially available transponder. However, commercially available Mode C transponders cannot currently report an altitude greater than 62,000 feet. In addition, by FAA regulations, such transponders must report pressure altitude, and for a vehicle going faster than the speed of sound while increasing in altitude, the pressure altitude can lag actual altitude by thousands of feet. The Federation described ADS–B as much more appropriate, and affordable, but noted that its use is constrained by the fact that the FAA's air traffic control system does not offer ADS–B throughout the United States.

The FAA agrees with the comments for the reasons provided. The requirement for a permittee to measure in real time the position and velocity of its reusable suborbital rocket, coupled with the requirement, discussed below, that a permittee communicate with Air Traffic Control during all phases of flight, should provide Air Traffic enough information to protect the public if a permitted vehicle flies outside its assigned operating area. However, the FAA may require the permittee to carry a transponder or similar device to allow Air Traffic Control to know directly the real time position and velocity of the reusable suborbital rocket if a vehicle is flying below 62,000 feet and slowly enough to communicate with Air Traffic Control's system. Satisfaction of these conditions is extremely unlikely given the velocities of suborbital rockets. The FAA will implement this requirement on a case-by-case basis through the terms and conditions of a permit, because the agency does not believe that the need for such a requirement is sufficiently widespread to implement a requirement of general applicability. Nor may it always be necessary. The characteristics of both the vehicle and the surrounding area will have to necessitate imposing the requirement.

As proposed in the NPRM, § 437.67 also requires a permittee to provide position and velocity data for post-flight use.

16. Communications

Section 437.69 requires that a permittee communicate with Air Traffic Control during all phases of flight, as proposed in the NPRM. XCOR agreed that continuous communication is necessary, even when flying above 60,000 feet. This requirement has greater import now that the FAA does not require Air Traffic tracking of a

launch vehicle. If a vehicle leaves an operating area, this communication link will allow a permittee to relay position and velocity information to Air Traffic.

17. Flight Rules

Section 437.71 requires that a permittee follow certain flight rules. They are the same as proposed in the NPRM, with one exception. In the NPRM, the FAA proposed that a permittee could not operate a reusable suborbital rocket within Class A, Class B, Class C, or Class D airspace or within the boundaries of the surface of Class E airspace designated for an airport, unless the permitee had prior authorization from the air traffic control facility having jurisdiction over that airspace. The FAA is not adopting this provision because it is unnecessary. The agreement with the responsible Air Traffic Control authority required by § 437.63 should include any need for prior authorization.

18. Anomaly Recording and Reporting and Implementation of Corrective Actions

Section 437.3 defines ''anomaly'' as a problem that occurs during verification or operation of a system, subsystem, process, facility or support equipment. Section 437.73 requires a permittee to record and report anomalies and implement corrective actions for those anomalies. A permittee must also report to the FAA any anomaly to, and corrective action for, any system that is necessary for compliance with the requirements to perform a hazard analysis, to contain a rocket within an operating area, and to conduct key flight-safety events properly. A permittee must take each corrective action before the next flight.

The FAA had proposed to define ''anomaly'' as an apparent problem or failure that occurs during verification or operation and affects a system, a subsystem, a process, support equipment, or facilities. The Federation questioned whether, by defining ''anomaly'' to include failures while simultaneously defining failures to include any anomalous condition, the definitions created a circular loop whose real meaning would be open to broad interpretation.[8]

Spaceport Associates suggested that the FAA limit anomalies to those that were potentially safety-critical. The FAA recognizes that the term anomaly is a broad term, and chose it to include issues during verification and operation of systems and subsystems that are not necessarily flight failures but could put the public at risk. The FAA is adopting the term anomaly with the modifications discussed above, but is clarifying the anomaly reporting requirements of § 437.73 to reduce concerns about the standard being too broad and burdensome. The FAA is only concerned about anomalies of systems, subsystems, processes, facilities, and support equipment that are essential for safe performance or operation. Therefore, the FAA is only requiring, under § 437.73, a permittee to report anomalies that are safety-critical.

Spaceport Associates commented that hazard analysis and anomaly reporting are good ideas, and will normally be done internally in any case by an operator conducting the test flights. Blue Origin suggested limiting the recording requirement to anomalies that occur during permitted flight. Blue Origin also recommended that the FAA only require an operator to report anomalies for specific systems, such as guidance and propulsion systems.

Anomalies that occur during system and subsystem verification testing are potential precursors to launch accidents. Recording and reporting these anomalies allow the operator and the FAA to analyze and evaluate problems that could lead to launch accidents. The goal of a strong system safety program is to prevent mishaps. Analyses of accidents often show that clues existed before the mishap in the form of anomalies during the project life cycle, including before flight. Anomalies that occur throughout the life cycle can provide important information about what conditions an operator needs to control. Therefore, it is prudent for the launch vehicle operator to identify, analyze, and mitigate not just anomalies that occur during flight, but also anomalies in vehicles and safety-related subsystems and components that occur on the ground. Although the FAA will not limit the reporting requirement to anomalies that occur during flight, the FAA does not wish to impose an unnecessary recordkeeping burden on the launch vehicle industry. Therefore, the FAA is not requiring that an operator report all anomalies, but only those that are safety-related.

The FAA is not limiting the reporting requirement to specific systems, but does limit the reporting requirement to anomalies associated with those systems necessary for complying with the hazard analysis, operating area, and key flight-safety event requirements. Therefore, the requirements are sufficiently narrowly drawn.

19. Additional Safety Requirements

Under § 437.77, the FAA may impose additional safety requirements on an applicant or permittee proposing an activity with a hazard not otherwise addressed in part 437. This activity may include a toxic hazard or the use of solid propellants. The FAA may also require the permittee to conduct additional analyses of the cause of any anomaly and corrective actions. XCOR agrees that the FAA needs this regulation because no one can predict every vehicle concept that will come along. XCOR stated, however, that the FAA must use common sense in its application.

20. Allowable Design Changes; Modification of an Experimental Permit

Section 437.85(a) states the FAA will identify in an experimental permit the type of changes that a permittee may make to the reusable suborbital rocket design without invalidating the permit. This is the same as proposed in the NPRM.

Blue Origin was concerned that the requirement might restrict modifications to the vehicle design, other than changes to the rocket motor. The requirement's reference to a ''suborbital rocket'' includes the entire vehicle, not just the rocket motor.

21. Pre-Flight Reporting

Section 437.89 requires a permittee to provide information regarding its payload, timing of flights, the operating area for each flight, and the planned maximum altitude not later than 30 days before each flight or series of flights conducted under an experimental permit. In addition, not later than 15 days before each permitted flight of greater than 150 km altitude, a permittee must provide the FAA its planned trajectory for a collision avoidance analysis. This requirement is the same as that proposed in the NPRM.

Spaceport Associates was concerned with submitting a flight trajectory at least two weeks before each flight, because an operator may want to insert a new mission with minimal changes just a few days after a previous flight. As Spaceport Associates recognized, this information is for USSTRATCOM so it can perform a collision avoidance analysis. Spaceport Associates asked what flexibility would be possible as flight rates increased. The FAA will

[8] The Federation also recommended against using or defining the term ''anomaly'' and replacing it with the term ''failure.'' The FAA agrees that some confusion could have resulted from defining ''anomaly'' in terms of failure. Anomalies are meant to encompass not only failures in flight but also problems that could result in flight failures in the future, including human errors, software faults, and incorrect procedures. Because ''problem'' encompasses failures, reference to ''failure'' is not necessary.

facilitate an agreement with USSTRATCOM to accommodate the needs of any particular flight test program, but operators must still provide the information 15 days in advance so the collision avoidance analysis may be conducted. The FAA does entertain requests for waivers to its timing requirements, but any flexibility in that regard will depend on the availability of USSTRATCOM resources.

22. For-Hire Prohibition

Section 437.91 states that no person may operate a reusable suborbital rocket under a permit for carrying any property or human being for compensation or hire. This is unchanged from the NPRM.

In the NPRM, the FAA proposed that, with one exception, the definition of ''compensation or hire'' is the same as that used in the aviation context. The FAA explained that compensation may include any form of payment including payment of operating costs such as fuel, a tax deduction if a flight is for charity, payment by a third-party, any non-monetary exchange for carrying a person for free (for example, the operator receives free advertising, parts, or maintenance, and the like), or any exchange of value including the bartering of goods or services in exchange for the transportation. The one exception, as stated in the NPRM, is that the FAA does not consider goodwill compensation. The FAA also explained that winning prize money, advertising revenue from logos, and flying space flight participants for free [9] would be allowed under this section. The Federation and XCOR applauded the FAA's proposal and requested no changes.

Masten, Mr. Paul T. Breed, Spaceport Associates, and Beyond Earth suggested that inert payloads such as souvenirs and trinkets should be allowed for compensation to help fund entrepreneurial companies during vehicle development. The FAA is bound by the CSLAA and unable to make this exception. The CSLAA prohibits carrying property for compensation or hire under a permit. Any payload, including a souvenir, constitutes property and its carriage for hire is not allowed. Masten inquired about the sale of images from onboard cameras. The sale of images from onboard still or video cameras would violate § 437.91. Mr. Breed requested clarification on whether the sale of used rocket parts would be permissible. The sale of a used rocket part would not violate § 437.91 if the rocket part was not carried on board for compensation or hire. The FAA can, however, envision a launch operator changing out a component of a vehicle that has flown in space if, due to the component having flown in space, the used component is worth more than a replacement. Or, as Paul Breed also suggests, selling used propellant tank insulation that has been imprinted with post card images. These practices are prohibited under § 437.91.

Tripoli commented that some high power rocket practitioners partner with universities to fly student research payloads, generally no bigger than a coffee can. The university pays for the rocket motors. Tripoli wants to ensure that this kind of cooperation is not considered ''for hire.'' This type of cooperation would not be allowed under an experimental permit. A launch operator may not receive any compensation, including the cost of a motor, for transporting a payload.

Any interpretation of the statutory prohibition will be guided by the principle that a permit is to be used for research and development, crew training, or showing compliance with license requirements. An operator seeking to generate revenue may do so under a license.

23. Inspection

As proposed in the NPRM, under § 437.95, a permittee may launch or reenter additional reusable suborbital rockets of the same design under the permit after the FAA inspects each additional reusable suborbital rocket. Blue Origin commented that inspecting any additional vehicles once a permit has been issued ''seems particularly unnecessary.'' This inspection, however, is necessary to ensure that any new vehicle is built as represented in the original application for the permit issued.

B. Other Regulatory Provisions Affected by Permit Authority and This Rulemaking

In addition to proposing a new part 437, the FAA proposed changes, mostly administrative in nature, to existing regulations to reflect the FAA's new authority to issue permits. Specifically, the FAA proposed changes to parts 401, 404, 405, 406, 413, 420, and 431. The FAA did not receive any substantive comments on parts 404, 405, 406, or 415. The FAA received comments on parts 401, 413, 420, and 431, as discussed below.

1. Activities Exempt From Licensing or Permitting

In § 401.5, the FAA defines amateur rocket activities as unmanned launch activities conducted at private sites involving rockets powered by a motor or motors having a total impulse of 200,000 pound-seconds or less and a total burning or operating time of less than 15 seconds, and a rocket having a ballistic coefficient—that is, gross weight in pounds divided by frontal area of rocket vehicle—less than 12 pounds per square inch. Under § 400.2, the licensing and permitting requirements do not apply to amateur rocket activities. As proposed in the NPRM, the definition of amateur rocket activities now only applies to unmanned activities, because the CSLAA prohibits the FAA from authorizing the launch or reentry of a launch vehicle or a reentry vehicle without a license or permit if a human being will be on board.

Paul T. Breed recommended that the FAA incorporate a waiver process in the proposed regulations for ''flying unmanned hovering/control development flights.'' The FAA notes that under § 400.2, the launch of unmanned vehicles does not require a license or permit, provided that the launch falls under the definition of amateur rocket activities. If a hovering vehicle does not meet the definition of amateur rocket activities, it must operate under a license or permit. Part 404 provides a process for otherwise obtaining a waiver.

XCOR suggested that, if the definition of amateur rocket activities requires everyone who proposes to fly a human being on a rocket to get an experimental permit, FAA oversight of rocket belt flights would be required. XCOR believes this would be a mistake in that rocket belt operators have made over 2000 public demonstration flights without harming a member of the public, all without oversight. XCOR believes rocket belts are sporting equipment, like SCUBA gear, rather than vehicles, and thus not subject to FAA oversight. The FAA agrees with XCOR that rocket belts, as they currently exist, are not vehicles. As such, they are not regulated under Chapter 701.

The National Association of Rocketry and Tripoli requested that sport rocketry be explicitly exempt from any regulation implementing the Commercial Space Launch Amendments Act of 2004. This is not necessary, because the requirements of 14 CFR chapter III currently do not apply to amateur rocket activities, as

[9] Masten questioned why space flight participants could board a flight under a permit but an operator could not charge for carriage of property. There is no difference: an operator may not charge for the carriage of either.

defined in 14 CFR 401.5. An operator need only satisfy the amateur definition to avoid having to comply with 14 CFR Ch. III.

2. Scope of ''Launch''

This final rule modifies the definition of ''launch'' to ensure that the FAA issues a permit only for activities that are closely proximate in time to flight, entail critical steps preparatory to initiating flight, are unique to space launch, and are inherently so hazardous as to warrant the FAA's regulatory oversight (the ''four-part test''). The FAA is also defining the end of launch for a suborbital RLV flight after vehicle landing or impact on Earth, and after each activity necessary to return the reusable suborbital rocket to a safe condition after the vehicle lands or impacts. Blue Origin and XCOR[10] agreed with the FAA's proposal to use the four-part test to interpret the beginning of launch on a case-by-case basis for each vehicle.

The same commenters also recommended that the FAA apply the four-part test to all RLV launches, regardless of whether conducted under a license or a permit. The commenters noted that unlike expendable launch vehicles (ELVs), RLVs may stay at a launch site for multiple flights, in cycles of storage, pre-flight, launch, and return to storage. These cycles may last days or years, depending on the RLV. Applying the same approach used for one-time expendable vehicles would mean perpetual regulatory oversight for RLVs. Without addressing the merits of these arguments, the FAA notes that a change to the RLV licensing requirements is outside the scope of this rulemaking. The FAA does plan to update 14 CFR part 431 in the near future and will consider the issue at that time.

XCOR appeared to suggest that the definition of launch not include pre-flight activities. Congress, however, mandated that pre-flight activities be included in the definition of launch when it amended Chapter 701 to include ''activities involved in the preparation of a launch vehicle ... for launch, when those activities take place at a launch site in the United States.'' 49 U.S.C. 70102(4). Accordingly, the FAA must treat preparatory activities as part of a launch. For purposes of issuing a permit, it will do so in accordance with the four-part test.

3. Permit as a Pre-Requisite to a License

Section 413.3(f) allows a person, individual, or foreign entity otherwise requiring a license under § 413.3(a) to instead obtain an experimental permit to launch or reenter a reusable suborbital rocket. In the NPRM, the FAA noted that certain vehicle operations may not be capable of demonstrating compliance with the collective and individual risk criteria of a license without the flight test data obtained under a permit. The Federation pointed out that this language implies that, if an applicant is unable to show compliance with the criteria of a license without the use of a permit, then it effectively requires someone to obtain a permit before obtaining a license.

To clarify, demonstrating compliance with the collective and individual risk criteria of a license without the flight test data may be challenging, time consuming, and expensive for certain operators of unproven launch vehicles. How much of a challenge this is depends on the launch vehicle characteristics, launch location, and flight profile. The experimental permit is designed to enable a launch operator to test its vehicle and obtain necessary flight test data for a license. Section 413.3 clearly states that the experimental permit is a voluntary alternative option to a license.

4. Address Change

In this final rule, the FAA has modified the address in § 413.7 for applicants to send a license or permit application. It is now more generic to apply to both licenses and permits.

5. Launch Site Location Review

Under § 420.30, if an applicant plans to use its proposed launch site solely for launches conducted under an experimental permit, the FAA will approve the launch site location if the FAA has already approved an operating area under part 437. XCOR agreed with this approach, approving of the fact that it would allow multiple operators to build on each others' regulatory successes.

6. Verification of System Safety Analysis

Section 431.35(d)(7) requires an applicant for a RLV license to provide data that verifies the risk elimination and mitigation measures resulting from the applicant's system safety analyses. In the NPRM, the FAA proposed that an applicant provide data that verifies the applicant's system safety analyses. XCOR stated that, according to the proposed definition of verification, the FAA would require the applicant to demonstrate, by measurement, that its safety system performed as intended. Therefore, XCOR believes that the FAA proposed that the applicant verify its safety system through flight test before an operator may be awarded a license or permit to perform that flight test, which would be impossible.

The FAA did not intend require an applicant to demonstrate a safety system by flight test before the FAA authorizes the flight test. The FAA proposed the change to § 431.35(d)(7) to clarify that it requires evidence that risk elimination and mitigation measures resulting from the system safety analysis are effective and have been properly implemented. The risk mitigation measures need not be a single safety system. In addition, this verification data requirement can be met through analysis, test, demonstration or inspection, and does not have to be met through flight test.

III. Rulemaking Analyses

Paperwork Reduction Act

This final rule contains the following new information collection requirements. As required by the Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)), the FAA has submitted the information requirements associated with this proposal to the Office of Management and Budget (OMB) for its review. Persons are not required to respond to a collection of information unless it displays a currently valid OMB number.

Title: Experimental Permits for Reusable Suborbital Rockets

Summary: The Associate Administrator for Commercial Space Transportation of the Federal Aviation Administration (FAA), Department of Transportation, is amending the FAA's commercial space transportation regulations under the Commercial Space Launch Amendments Act of 2004. The FAA adopts application requirements for an operator of a reusable suborbital rocket to obtain an experimental permit. The FAA also adopts operating requirements and restrictions on permitted launch and reentry.

Use of: The information collected will be used by the FAA to decide whether to issue an experimental permit to an applicant, and to monitor a permittee's compliance with its permit and with applicable regulations.

Respondents (including number of): The likely respondents to this information requirement are private entities planning to conduct developmental testing of reusable suborbital rockets. The FAA estimates that there will be eight to twelve private operators who would obtain permits over ten years.

Frequency: The frequency of this collection is determined by the respondents. They notify the FAA on the occasion of launching or applying for a permit.

Annual Burden Estimate: This rule contains information collections that are subject to review by OMB under the Paperwork Reduction Act of 1995 (Pub. L. 104–13). The title, description, and respondent description of the annual burden are shown below.

Estimated Burden: The FAA expects that private entities would incur reporting and recordkeeping costs when applying for and operating under a permit, as follows.

- Permittees would take 156 to 245 hours annually to submit materials to the FAA to renew their permits at an annual cost of $10,833 to $17,024.
- Permit applicants would spend 432 to 648 hours annually to provide information for the FAA to analyze environment impacts and to conduct a maximum probable loss analysis at a cost of $29,981 to $44,971 annually.
- Permit applicants would need 8 to 12 hours annually to describe methods used to meet tracking requirements at a cost of $533 to $799 annually.
- Permit applicants would need 1,248 to 1,872 hours annually to demonstrate to the FAA that their operations would protect public safety at an annual cost of $86,611 to $129,917.
- Permit applicants would need 96 to 144 hours annually to prepare a mishap response plan at a cost of $6,662 to $9,994 annually
- Permittees would need 91 to 182 hours annually to provide the FAA with pre-flight information at an annual cost of $6,315 to $12,631.

The total estimated industry annual paperwork burden would range from 2,031 to 3,103 hours at a cost ranging from $142,483 to $216,883. The estimated average annual hour burden would be 2,562 at an estimated average cost of $179,683.

The final rule would also increase paperwork costs for the Federal government because the FAA would have to spend hours on the following activities.

- The FAA would spend 4,992 to 7,488 hours annually at an annual cost of $259,784 to $389,676 consulting with applicants and reviewing and approving permit applications.
- The FAA would spend 58 to 86 hours annually at an annual cost of $5,651 to $8,475 (including travel expenses) to travel to and inspect suborbital rockets.
- The FAA would spend 96 to 144 hours annually at an annual cost of $4,996 to $7,494 identifying the types of changes that may be made to each reusable suborbital rocket without invalidating its permit.
- The FAA would spend 84 to 132 hours annually at an annual cost of $4,371 to $6,869 to re-inspect a vehicle during the permit renewal process.
- The FAA would require 437 to 686 hours annually at an annual cost of $22,731 to $35,721 to conduct the reviews required to determine whether a permit can be renewed.

The total estimated FAA annual paperwork burden would range from 5,666 to 8,537 hours at a cost ranging from $297,533 to $448,235. The estimated average annual hour burden to the Federal government would be 7,102 at an estimated average cost of $372,884.

An agency may not collect or sponsor the collection of information, nor may it impose an information collection requirement unless it displays a currently valid Office of Management and Budget (OMB) control number.

In the NPRM, the FAA solicited comments on minimizing ''the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology.'' XCOR stated that it has in the past had trouble sending large electronic files to the FAA. The FAA could improve this process by setting up a secure gateway. The FAA agrees that a simple process for exchanging electronic information could minimize the burden of the permit application process. Although the FAA does not have such capabilities at this time, a dedicated FTP server and the ability to accept electronic signatures are two possible enhancements to the FAA's capabilities. The FAA will consider acquiring such capabilities if enough demand for such capabilities arises.

Spaceport Associates stated that although there is no doubt that the proposed experimental permit regime will reduce paperwork for launch vehicle operators, the amount that remains due to what it described as the high initial burden is still going to cause a significant economic impact to small entities. To carry out the reporting would require the equivalent of a full-time staff member, in an organization that may have no more than ten to twenty people who are carrying out all the other functions of a company. Measures necessary to conduct launches or reentries safely may indeed require the equivalent of a full-time staff member or more, depending on the safety issues inherent in the launch vehicle characteristics, launch location, and flight profile. However, an organization with a good safety culture understands that spending money to prevent accidents is as important to the success of an organization as the money spent on critical components. Conducting safe launches is as important as conducting successful launches, and the resources to ensure safety should enjoy equal status with other aspects of the program. Relative to the current licensing regime the rule will not have a significant impact on small entities. The cost savings that a private entity will attain under this rule from not having to follow the current licensing regime will exceed the costs imposed by this rule.

International Compatibility

In keeping with U.S. obligations under the Convention on International Civil Aviation, it is FAA policy to comply with International Civil Aviation Organization (ICAO) Standards and Recommended Practices to the maximum extent practicable. The FAA has determined that there are no ICAO Standards and Recommended Practices that correspond to these regulations.

Regulatory Evaluation, Regulatory Flexibility Determination, Trade Impact Assessment, and Unfunded Mandates Assessment

Changes to Federal regulations must undergo several economic analyses. First, Executive Order 12866 directs that each Federal agency shall propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs. Second, the Regulatory Flexibility Act of 1980 (Pub. L. 96–354) requires agencies to analyze the economic impact of regulatory changes on small entities. Third, the Trade Agreements Act (Pub. L. 96–39) prohibits agencies from setting standards that create unnecessary obstacles to the foreign commerce of the United States. In developing U.S. standards, this Trade Act requires agencies to consider international standards and, where appropriate, that they be the basis of U.S. standards. Fourth, the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4) requires agencies to prepare a written assessment of the costs, benefits, and other effects of proposed or final rules that include a Federal mandate likely to result in the expenditure by State, local, or tribal governments, in the aggregate, or by the private sector, of $100 million or more annually (adjusted for inflation with base year of 1995). Currently, DOT agencies set the level at $128.1 million. This portion of the preamble summarizes the FAA's analysis of the economic impacts of this final rule. We suggest readers seeking greater detail read the full regulatory

evaluation, a copy of which we have placed in the docket for this rulemaking.

In conducting these analyses, FAA has determined this final rule has benefits that justify its costs, and is a ''significant regulatory action'' as defined in section 3(f) of Executive Order 12866 because it raises novel policy issues contemplated under that executive order. Accordingly, OMB has reviewed this final rule. The rule is also ''significant'' as defined in DOT's Regulatory Policies and Procedures. The final rule, if adopted, will not have a significant economic impact on a substantial number of small entities, will not create unnecessary obstacles to international trade and will not impose an unfunded mandate on state, local, or tribal governments, or on the private sector. These analyses, available in the draft regulatory evaluation supporting this final rule, are summarized below.

Potentially Impacted Parties

Private Sector

- Operators who will be conducting reusable suborbital rocket launches for research and development, showing compliance with license requirements, or crew training.
- The public who might be exposed to more risk.

Government

- Federal Aviation Administration that will be reviewing and approving applications, inspecting the vehicles and permitted activities, identifying allowable changes to the vehicle, and renewing permits.

Assumptions and Ground Rules Used in Analysis (Discount Rate, Period of Analysis, Value of Life, Cost of Injuries)

- All monetary values are expressed in 2004 dollars.
- The time horizon for the analysis is 10 years (2006 to 2016).
- Costs are discounted at 7%.
- Hourly burdened industry rate is $69.40.
- Hourly burdened government rate is $52.04.
- 8 to 12 entities will obtain permits over ten years.
- Permit issued to an entity is used for one year. It is renewed only once for the following year.
- Each permit holder will construct one vehicle to carry out all flights under the permit.
- As advised by industry, private sector entities will perform from 455 to 910 flights under experimental permits over ten years.
- Requirements fulfilled by Scaled Composites to license SpaceShipOne launches are considered current practice for a license.

Some provisions will cause a private sector entity to incur additional costs over the requirements of a license. The estimated additional person hours required per permit for each rule section are as follows.

Section		Person-hours incurred per permit
§ 437.21	General	24
§ 437.37 § 437.67	Tracking Tracking	96
§ 413.23	License or permit renewal	24

Some provisions will allow a private sector entity to realize cost savings over the licensing regime. The estimated person hours saved per permit under each rule section are as follows.

Rule section		Person hours avoided per permit or per flight
§ 437.25 § 437.27 § 437.29 § 437.31 § 437.53 § 437.55 § 437.57 § 437.59	Flight test plan Pre-flight and post-flight operations Hazard analysis Verification evidence of operating area containment and key flight-safety event limitations Pre-flight and post-flight operations Hazard analysis Operating area containment Key flight-safety event limitations	4,680
§ 437.41 § 437.75	Mishap response plan Mishap reporting, responding and investigating	120
§ 437.69	Communications	160
§ 431.33	Safety organization	2,080
§ 431.37	Mission readinessa [a]	40
§ 431.43	Reusable launch vehicle mission operational requirements and restrictions	2,080

[a] Person hours avoided are per flight.

Some provisions will cause the FAA to incur additional costs over the requirements of a license. The estimated additional person hours required per permit for each section are as follows.

Rule section	Person hours incurred per permit
§ 437.21 General	72
§ 437.85 Allowable design changes; Modification of an experimental permit	120
§ 413.23 License or permit renewal	120

Some provisions will allow the FAA to realize cost savings over the launch licensing regime. The estimated person hours saved per permit for each rule section are as follows.

Rule	Person hours avoided per permit
Pre-application consultation, and permit application review and issuance activities	10,400

Benefits

The rule will provide an expeditious avenue for experimental commercial space transportation initiatives that will enhance and accelerate advances in this arena. This could lead to significant engineering breakthroughs that would benefit public consumption of commercial space transportation. Further, the cost savings realized by the commercial space transportation industry could be used to advance the overall safety of reusable suborbital rocket technology.

Total Net Costs

SUMMARY OF INCREMENTAL COST IMPACTS AND COST SAVINGS ATTRIBUTABLE TO THE RULE FOR THE TEN-YEAR PERIOD, 2006 THROUGH 2015

[In 2004 dollars]

Category	Upper bound		Lower bound	
	Undiscounted	Discounted [a]	Undiscounted	Discounted [a]
Commercial Space Transportation Industry Compliance Costs	$141,058	$97,469	$93,483	$63,475
Federal Aviation Administration Administrative Costs	264,862	180,919	173,387	116,757
Total Costs	405,920	278,388	266,870	180,232
Commercial Space Transportation Industry Cost Savings	11,709,168	8,049,830	7,336,968	4,976,830
Federal Aviation Administration Cost Savings	6,494,592	4,512,659	4,329,728	2,951,467
Total Cost Savings	18,203,760	12,562,489	11,666,696	7,928,297
Total Net Cost Savings	17,797,840	12,284,101	11,399,826	7,748,065

[a] Calculated using a discount factor of seven percent over a ten-year period. (See Tables A–5 to A–30 in the Appendix.)

Comparison of Benefits and Costs

The rule will result in an estimated net cost savings of $11.4 million ($7.7 million discounted) to $17.8 million dollars ($12.3 million discounted). The rule is expected to enhance and accelerate advances in commercial space transportation. It will do so by making it less costly for the industry to fly research and development missions to test new design concepts, new equipment or new operating techniques, to perform crew training, and to demonstrate compliance with license requirements. Without the new availability of a permit, an operator will have to obtain a license, which imposes more costs for these activities.

The rule might increase risk to public safety, because it will require fewer safety analyses and will eliminate other requirements such as a mission readiness review, a communications plan prepared in advance of the launch (the rule would require the private sector entity to be in contact with Air Traffic), and a safety organization that are required under a launch license. At this stage of industry development, it is premature to quantify any potential risk increase because too little is known about the safety impacts these measures may have. Additionally, the FAA has attempted to counterbalance any negative effects on safety of the more lenient permitting requirements by requiring operations to occur within a specified area where risk of harming others is reduced. The FAA anticipates that it will eventually obtain the experience and information necessary to quantify any increase in risk in a measurable fashion. This is because the FAA plans to monitor the safety of permitted launches to ensure that the approach is adequate to protect public safety.

Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 (Pub. L. 96–354) (RFA) establishes ''as a principle of regulatory issuance that agencies shall endeavor, consistent with the objectives of the rule and of applicable statutes, to fit regulatory and informational requirements to the scale

of the businesses, organizations, and governmental jurisdictions subject to regulation. To achieve this principle, agencies are required to solicit and consider flexible regulatory proposals and to explain the rationale for their actions to assure that such proposals are given serious consideration.'' The RFA covers a wide-range of small entities, including small businesses, not-for-profit organizations, and small governmental jurisdictions.

Agencies must perform a review to determine whether a rule will have a significant economic impact on a substantial number of small entities. If the agency determines that it will, the agency must prepare a regulatory flexibility analysis as described in the RFA.

However, if an agency determines that a rule is not expected to have a significant economic impact on a substantial number of small entities, section 605(b) of the RFA provides that the head of the agency may so certify and a regulatory flexibility analysis is not required. The certification must include a statement providing the factual basis for this determination, and the reasoning should be clear.

The FAA believes that this final rule will not have a significant impact on a substantial number of entities for the following reason:

The FAA concludes that a substantial number of firms in the human space flight industry will be affected by the rule because many of the companies in the fledgling industry are small. The rule will allow these entities to realize cost savings that they would otherwise not have gained under a license-only regime. Because, with the exception of Virgin Galactic, all the entities assessed in the regulatory evaluation are small entities, the same analysis used there applies to the regulatory flexibility determination. Accordingly, pursuant to the Regulatory Flexibility Act, 5 U.S.C. 605(b), the FAA Administrator certifies that the rule will not have a significant economic impact on a substantial number of small entities.

Therefore, as the FAA Administrator, I certify that this rule will not have a significant economic impact on a substantial number of small entities.

International Trade Impact Assessment

The Trade Agreements Act of 1979 (Pub. L. 96–39) prohibits Federal agencies from establishing any standards or engaging in related activities that create unnecessary obstacles to the foreign commerce of the United States. Legitimate domestic objectives, such as safety, are not considered unnecessary obstacles. The statute also requires consideration of international standards and, where appropriate, that they be the basis for U.S. standards. For experimental commercial space transportation activities, there are no international standards. The FAA has assessed the potential effect of this rule and determined that it would impose the same costs on domestic and international entities launching from the U.S. under an experimental permit, and thus would have a neutral trade impact.

Unfunded Mandates Assessment

Title II of the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4) requires each Federal agency to prepare a written statement assessing the effects of any Federal mandate in a proposed or final agency rule that may result in an expenditure of $100 million or more (adjusted annually for inflation with the base year 1995) in any one year by State, local, and tribal governments, in the aggregate, or by the private sector; such a mandate is deemed to be a ''significant regulatory action.'' The FAA currently uses an inflation-adjusted value of $128.1 million in lieu of $100 million.

This final rule does not contain such a mandate. The requirements of Title II of the Act, therefore, do not apply.

Executive Order 13132, Federalism

The FAA has analyzed this final rule under the principles and criteria of Executive Order 13132, Federalism. We determined that this action will not have a substantial direct effect on the States, or the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government, and therefore does not have federalism implications.

Environmental Analysis

FAA Order 1050.1E identifies FAA actions that are categorically excluded from preparation of an environmental assessment or environmental impact statement under the National Environmental Policy Act in the absence of extraordinary circumstances. The FAA has determined this rulemaking qualifies for the categorical exclusion identified in paragraph 312f and involves no extraordinary circumstances. Also, the FAA conducts environmental reviews at the time it issues permits.

Regulations That Significantly Affect Energy Supply, Distribution, or Use

The FAA has analyzed this Final Rule under Executive Order 13211, Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use (May 18, 2001). We have determined that it is not a ''significant energy action'' under the executive order because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy.

List of Subjects

14 CFR Part 401

Organization and functions (Government agencies), Space safety, Space transportation and exploration.

14 CFR Part 404

Administrative practice and procedure, Space safety, Space transportation and exploration.

14 CFR Part 405

Investigations, Penalties, Space safety, Space transportation and exploration.

14 CFR Part 406

Administrative practice and procedure, Space safety, Space transportation and exploration.

14 CFR Part 413

Confidential business information, Human space flight, Reporting and recordkeeping requirements, Space safety, Space transportation and exploration.

14 CFR Part 415

Aviation safety, Environmental protection, Space transportation and exploration.

14 CFR Part 420

Airspace, Human space flight, Space safety, Space transportation and exploration.

14 CFR Part 431

Aviation safety, Environmental protection, Investigations, Human space flight, Reporting and recordkeeping requirements, Rockets, Space safety, Space transportation and exploration.

14 CFR Part 437

Aviation safety, Airspace, Human space flight, Rockets, Space safety, Space transportation and exploration.

IV. Regulatory Text

■ For the reasons discussed above, the Federal Aviation Administration amends Chapter III of Title 14, Code of Federal Regulations, as follows:

TITLE 14—AERONAUTICS AND SPACE

CHAPTER III—COMMERCIAL SPACE TRANSPORTATION FEDERAL AVIATION ADMINISTRATION DEPARTMENT OF TRANSPORTATION

PART 401—ORGANIZATION AND DEFINITIONS

■ 1. The authority citation for part 401 continues to read as follows:

Authority: 49 U.S.C. 70101–70121.

■ 2. Revise § 401.3 to read as follows:

§ 401.3 The Associate Administrator for Commercial Space Transportation.

The Office is headed by an Associate Administrator to exercise the Secretary's authority to license or permit and otherwise regulate commercial space transportation and to discharge the Secretary's responsibility to encourage, facilitate, and promote commercial space transportation by the United States private sector.

■ 3. Amend § 401.5 as follows:

■ A. Add definitions for ''experimental permit'', ''validation'', and ''verification'' in alphabetical order to read as set forth below.

■ B. Revise the definitions for ''amateur rocket activities'', ''launch'', ''launch incident'', and ''reentry incident'' to read as set forth below.

§ 401.5 Definitions.

* * * * *

Amateur rocket activities means unmanned launch activities conducted at private sites involving rockets—

(1) Powered by a motor or motors having a total impulse of 200,000 pound-seconds or less;

(2) Powered by a motor or motors having a total burning or operating time of less than 15 seconds; and

(3) Having a ballistic coefficient—that is, gross weight in pounds divided by frontal area of rocket vehicle—less than 12 pounds per square inch.

* * * * *

Experimental permit or *permit* means an authorization by the FAA to a person to launch or reenter a reusable suborbital rocket.

* * * * *

Launch means to place or try to place a launch vehicle or reentry vehicle and any payload from Earth in a suborbital trajectory, in Earth orbit in outer space, or otherwise in outer space, and includes preparing a launch vehicle for flight at a launch site in the United States. Launch includes the flight of a launch vehicle and includes pre- and post-flight ground operations as follows:

(1) Beginning of launch.

(i) Under a license, launch begins with the arrival of a launch vehicle or payload at a U.S. launch site.

(ii) Under a permit, launch begins when any pre-flight ground operation at a U.S. launch site meets all of the following criteria:

(A) Is closely proximate in time to flight,

(B) Entails critical steps preparatory to initiating flight,

(C) Is unique to space launch, and

(D) Is inherently so hazardous as to warrant the FAA's regulatory oversight.

(2) End of launch.

(i) For launch of an orbital expendable launch vehicle (ELV), launch ends after the licensee's last exercise of control over its launch vehicle.

(ii) For launch of an orbital reusable launch vehicle (RLV) with a payload, launch ends after deployment of the payload. For any other orbital RLV, launch ends upon completion of the first sustained, steady-state orbit of an RLV at its intended location.

(iii) For a suborbital ELV or RLV launch, launch ends after reaching apogee if the flight includes a reentry, or otherwise after vehicle landing or impact on Earth, and after activities necessary to return the vehicle to a safe condition on the ground.

* * * * *

Launch incident means an unplanned event during the flight of a launch vehicle, other than a launch accident, involving a malfunction of a flight safety system or safety-critical system, or a failure of the licensee's or permittee's safety organization, design, or operations.

* * * * *

Reentry incident means any unplanned event occurring during the reentry of a reentry vehicle, other than a reentry accident, involving a malfunction of a reentry safety-critical system or failure of the licensee's or permittee's safety organization, procedures, or operations.

* * * * *

Validation means an evaluation to determine that each safety measure derived from a system safety process is correct, complete, consistent, unambiguous, verifiable, and technically feasible. Validation ensures that the right safety measure is implemented, and that the safety measure is well understood.

Verification means an evaluation to determine that safety measures derived from a system safety process are effective and have been properly implemented. Verification provides measurable evidence that a safety measure reduces risk to acceptable levels.

PART 404—REGULATIONS AND LICENSING REQUIREMENTS

■ 4. The authority citation for part 404 continues to read as follows:

Authority: 49 U.S.C. 70101–70121.

■ 5. Revise § 404.1 to read as follows:

§ 404.1 Scope.

This part establishes procedures for issuing regulations to implement 49 U.S.C. Subtitle IX, chapter 701, and for eliminating or waiving requirements for licensing or permitting of commercial space transportation activities under that statute.

■ 6. Revise § 404.17 to read as follows:

§ 404.17 Additional rulemaking proceedings.

The FAA may initiate other rulemaking proceedings, if necessary or desirable. For example, it may invite interested people to present oral arguments, participate in conferences, appear at informal hearings, or participate in any other proceedings.

PART 405—INVESTIGATIONS AND ENFORCEMENT

■ 7. The authority citation for part 405 continues to read as follows:

Authority: 49 U.S.C. 70101–70121.

■ 8. Revise § 405.1 to read as follows:

§ 405.1 Monitoring of licensed, permitted, and other activities.

Each licensee or permittee must allow access by and cooperate with Federal officers or employees or other individuals authorized by the Associate Administrator to observe licensed facilities and activities, including launch sites and reentry sites, as well as manufacturing, production, testing, and training facilities, or assembly sites used by any contractor, licensee, or permittee to produce, assemble, or test a launch or reentry vehicle and to integrate a payload with its launch or reentry vehicle. Observations are conducted to monitor the activities of the licensee, permittee, or contractor at such time and to such extent as the Associate Administrator considers reasonable and necessary to determine compliance with the license or permit or to perform the Associate Administrator's responsibilities pertaining to payloads for which no Federal license, authorization, or permit is required.

■ 9. Revise § 405.3(a), (b), and (d) to read as follows:

§ 405.3 Authority to modify, suspend or revoke.

(a) The FAA may modify a license or permit issued under this chapter upon

application by the licensee or permittee or upon the FAA's own initiative, if the FAA finds that the modification is consistent with the requirements of the Act.

(b) The FAA may suspend or revoke any license or permit issued to such licensee or permittee under this chapter if the FAA finds that a licensee or permittee has substantially failed to comply with any requirement of the Act, any regulation issued under the Act, the terms and conditions of a license or permit, or any other applicable requirement; or that public health and safety, the safety of property, or any national security or foreign policy interest of the United States so require.

* * * * *

(d) Whenever the FAA takes any action under this section, the FAA immediately notifies the licensee or permittee in writing of the FAA's finding and the action, which the FAA has taken or proposes to take regarding such finding.

■ 10. Revise § 405.5 introductory text and paragraph (a) to read as follows:

§ 405.5 Emergency orders.

The Associate Administrator may immediately terminate, prohibit, or suspend a licensed or permitted launch, reentry, or operation of a launch or reentry site if the Associate Administrator determines that—

(a) The licensed or permitted launch, reentry, or operation of a launch or reentry site is detrimental to public health and safety, the safety of property, or any national security or foreign policy interest of the United States; and

* * * * *

PART 406—INVESTIGATIONS, ENFORCEMENT, AND ADMINISTRATIVE REVIEW

■ 11. The authority citation for part 406 continues to read as follows:

Authority: 49 U.S.C. 70101–70121.

■ 12. Revise § 406.1 heading and paragraphs (a)(2) and (3), and add paragraphs (a)(4) and (5) to read as follows:

§ 406.1 Hearings in license, permit, and payload actions.

(a) * * *

(2) An owner or operator of a payload regarding any decision to prevent the launch or reentry of the payload;

(3) A licensee regarding any decision to suspend, modify, or revoke a license or to terminate, prohibit, or suspend any licensed activity;

(4) An applicant for a permit regarding an FAA decision to issue a permit with conditions or to deny the issuance of the permit; and

(5) A permittee regarding any decision to suspend, modify, or revoke a permit or to terminate, prohibit, or suspend any permitted activity.

* * * * *

■ 13. Revise § 406.3 heading and paragraph (a) to read as follows:

§ 406.3 Submissions; oral presentation in license, permit, and payload actions.

(a) The FAA will make decisions about license, permit, and payload actions under this subpart based on written submissions unless the administrative law judge requires an oral presentation.

* * * * *

■ 14. Revise § 406.5 heading to read as follows.

§ 406.5 Administrative law judge's recommended decision in license, permit, and payload actions.

* * * * *

■ 15. Revise § 406.9(a), (c) introductory text, and (f)(3) to read as follows:

§ 406.9 Civil penalties.

(a) *Civil penalty liability.* Under 49 U.S.C. 70115(c), a person found by the FAA to have violated a requirement of the Act, a regulation issued under the Act, or any term or condition of a license or permit issued or transferred under the Act, is liable to the United States for a civil penalty of not more than $100,000 for each violation, as adjusted for inflation. A separate violation occurs for each day the violation continues.

* * * * *

(c) *Notice of proposed civil penalty.* A civil penalty action is initiated when the agency attorney advises a person, referred to as the respondent, of the charges or other reasons upon which the FAA bases the proposed action and allows the respondent to answer the charges and to be heard as to why the civil penalty should not be imposed. A notice of proposed civil penalty states the facts alleged; any requirement of the Act, a regulation issued under the Act, or any term or condition of a license or permit issued or transferred under the Act allegedly violated by the respondent; and the amount of the proposed civil penalty. Not later than 30 days after receipt of the notice of proposed civil penalty the respondent may elect to proceed by one or more of the following:

* * * * *

(f) * * *

(3) The compromise order may not be used as evidence of a prior violation in any subsequent civil penalty action, license, or permit action.

* * * * *

■ 16. Revise § 406.127(a)(3)(ii) to read as follows:

§ 406.127 Complaint and answer in civil penalty adjudications.

(a) * * *

(3) * * *

(ii) Any requirement of the Act, a regulation issued under the Act, or any term or condition of a license or permit issued or transferred under the Act allegedly violated by the respondent.

* * * * *

PART 413—LICENSE AND EXPERIMENTAL PERMIT APPLICATION PROCEDURES

■ 17. The authority citation for part 413 continues to read as follows:

Authority: 49 U.S.C. 70101–70121.

■ 18. Revise § 413.1 to read as follows:

§ 413.1 Scope of this part.

(a) This part explains how to apply for a license or experimental permit. These procedures apply to all applications for issuing a license or permit, transferring a license, and renewing a license or permit.

(b) Use the following table to locate specific requirements:

Subject	Part
(1) Obtaining a Launch License	415
(2) License to Operate a Launch Site	420
(3) Launch and Reentry of a Reusable Launch Vehicle (RLV)	431
(4) License to Operate a Reentry Site	433
(5) Reentry of a Reentry Vehicle other than a Reusable Launch Vehicle (RLV)	435
(6) Experimental Permits	437

■ 19. Revise § 413.3 to read as follows:

§ 413.3 Who must obtain a license or permit.

(a) A person must obtain a license in accordance with this section, unless eligible for an experimental permit under paragraph (f) of this section.

(b) A person must obtain a license to—

(1) Launch a launch vehicle from the United States;

(2) Operate a launch site within the United States;

(3) Reenter a reentry vehicle in the United States; or

(4) Operate a reentry site within the United States.

(c) A person who is a U.S. citizen or an entity organized under the laws of

the United States or any State must obtain a license to—

(1) Launch a launch vehicle outside the United States;

(2) Operate a launch site outside the United States;

(3) Reenter a reentry vehicle outside the United States; or

(4) Operate a reentry site outside the United States.

(d) A foreign entity in which a United States citizen has a controlling interest must obtain a license to launch a launch vehicle from or to operate a launch site in—

(1) Any place that is outside the territory or territorial waters of any nation, unless there is an agreement in force between the United States and a foreign nation providing that such foreign nation has jurisdiction over the launch or the operation of the launch site; or

(2) The territory of any foreign nation, including its territorial waters, if there is an agreement in force between the United States and that foreign nation providing that the United States has jurisdiction over the launch or the operation of the launch site.

(e) A foreign entity in which a U.S. citizen has a controlling interest must obtain a license to reenter a reentry vehicle or to operate a reentry site in—

(1) Any place that is outside the territory or territorial waters of any nation, unless there is an agreement in force between the United States and a foreign nation providing that such foreign nation has jurisdiction over the reentry or the operation of the reentry site; or

(2) The territory of any foreign nation if there is an agreement in force between the United States and that foreign nation providing that the United States has jurisdiction over the reentry or the operation of the reentry site.

(f) A person, individual, or foreign entity otherwise requiring a license under this section may instead obtain an experimental permit to launch or reenter a reusable suborbital rocket under part 437 of this chapter.

■ 20. Revise § 413.5 to read as follows:

§ 413.5 Pre-application consultation.

A prospective applicant must consult with the FAA before submitting an application to discuss the application process and possible issues relevant to the FAA's licensing or permitting decision. Early consultation helps an applicant to identify possible regulatory issues at the planning stage when changes to an application or to proposed licensed or permitted activities are less likely to result in significant delay or costs to the applicant.

■ 21. Revise § 413.7(a), (b)(3), and (c)(1) and (3) to read as follows:

§ 413.7 Application.

(a) Form. An application must be in writing, in English and filed in duplicate with the Federal Aviation Administration, Associate Administrator for Commercial Space Transportation, Room 331, 800 Independence Avenue, SW., Washington, DC 20591. Attention: Application Review.

(b) * * *

(3) The type of license or permit for which the applicant is applying.

(c) * * *

(1) For a corporation: An officer or other individual authorized to act for the corporation in licensing or permitting matters.

* * * * *

(3) For a joint venture, association, or other entity: An officer or other individual authorized to act for the joint venture, association, or other entity in licensing or permitting matters.

* * * * *

■ 22. Revise §1A413.11 to read as follows:

§ 413.11 Acceptance of an application.

The FAA will initially screen an application to determine whether it is complete enough for the FAA to start its review. After completing the initial screening, the FAA will notify the applicant in writing of one of the following:

(a) The FAA accepts the application and will initiate the reviews required to make a decision about the license or permit; or

(b) The application is so incomplete or indefinite that the FAA cannot start to evaluate it. The FAA will reject it and notify the applicant, stating each reason for rejecting it and what action the applicant must take for the FAA to accept the application. The FAA may return a rejected application to the applicant or may hold it until the applicant takes the required actions.

■ 23. Revise § 413.13 to read as follows:

§ 413.13 Complete application.

The FAA's acceptance of an application does not mean it has determined that the application is complete. If, in addition to the information required by this chapter, the FAA requires other information necessary for a determination that public health and safety, safety of property, and national security and foreign policy interests of the United States are protected during the conduct of a licensed or permitted activity, an applicant must submit the additional information.

■ 24. Revise § 413.15 to read as follows:

§ 413.15 Review period.

(a) *Review period duration.* Unless otherwise specified in this chapter, the FAA reviews and makes a decision on an application within 180 days of receiving an accepted license application or within 120 days of receiving an accepted permit application.

(b) *Review period tolled.* If an accepted application does not provide sufficient information to continue or complete the reviews or evaluations required by this chapter for a licensing or permitting determination, or an issue exists that would affect a determination, the FAA notifies the applicant, in writing, and informs the applicant of any information required to complete the application. If the FAA cannot review an accepted application because of lack of information or for any other reason, the FAA will toll the 180-day or 120-day review period until the FAA receives the information it needs or the applicant resolves the issue.

(c) *Notice.* If the FAA does not make a decision within 120 days of receiving an accepted license application or within 90 days of receiving an accepted permit application, the FAA informs the applicant, in writing, of any outstanding information needed to complete the review, or of any issues that would affect the decision.

■ 25. Revise § 413.17 to read as follows:

§ 413.17 Continuing accuracy of application; supplemental information; amendment.

(a) An applicant must ensure the continuing accuracy and completeness of information furnished to the FAA as part of a pending license or permit application. If at any time the information an applicant provides is no longer accurate and complete in all material respects, the applicant must submit new or corrected information. As part of this submission, the applicant must recertify the accuracy and completeness of the application under § 413.7. If an applicant does not comply with any of the requirements set forth in this paragraph, the FAA can deny the license or permit application.

(b) An applicant may amend or supplement a license or permit application at any time before the FAA issues or transfers the license or permit.

(c) Willful false statements made in any application or document relating to an application, license, or permit are punishable by fine and imprisonment under section 1001 of Title 18, United

States Code, and by administrative sanctions in accordance with part 405 of this chapter.

■ 26. Revise § 413.19 to read as follows:

§ 413.19 Issuing a license or permit.

After the FAA completes its reviews and makes the decisions required by this chapter, the FAA issues a license or permit to the applicant.

■ 27. Revise § 413.21 (a), (b) introductory text, and (b)(1) to read as follows:

§ 413.21 Denial of a license or permit application.

(a) The FAA informs an applicant, in writing, if it denies an application and states the reasons for denial.

(b) If the FAA has denied an application, the applicant may either:

(1) Attempt to correct any deficiencies identified and ask the FAA to reconsider the revised application. The FAA has 60 days or the number of days remaining in the review period, whichever is greater, within which to reconsider the decision; or

* * * * *

■ 28. Revise § 413.23 to read as follows:

§ 413.23 License or permit renewal.

(a) *Eligibility.* A licensee or permittee may apply to renew its license or permit by submitting to the FAA a written application for renewal at least 90 days before the license expires or at least 60 days before the permit expires.

(b) *Application.* (1) A license or permit renewal application must satisfy the requirements set forth in this part and any other applicable part of this chapter.

(2) The application may incorporate by reference information provided as part of the application for the expiring license or permit, including any modifications to the license or permit.

(3) An applicant must describe any proposed changes in its conduct of licensed or permitted activities and provide any additional clarifying information required by the FAA.

(c) *Review of application.* The FAA reviews the application to determine whether to renew the license or permit for an additional term. The FAA may incorporate by reference any findings that are part of the record for the expiring license or permit.

(d) *Renewal of license or permit.* After the FAA finishes its reviews, the FAA issues an order modifying the expiration date of the license or permit. The FAA may impose additional or revised terms and conditions necessary to protect public health and safety and the safety of property and to protect U.S. national security and foreign policy interests.

(e) *Denial of license or permit renewal.* The FAA informs a licensee or permittee, in writing, if the FAA denies the application for renewal and states the reasons for denial. If the FAA denies an application, the licensee or permittee may follow the procedures of § 413.21 of this part.

PART 415—LAUNCH LICENSE

■ 29. The authority citation for part 415 continues to read as follows:

Authority: 49 U.S.C. 70101–70121.

■ 30. Revise § 415.1 to read as follows:

§ 415.1 Scope.

This part prescribes requirements for obtaining a license to launch a launch vehicle, other than a reusable launch vehicle (RLV), and post-licensing requirements with which a licensee must comply to remain licensed. Requirements for preparing a license application are in part 413 of this subchapter.

PART 420—LICENSE TO OPERATE A LAUNCH SITE

■ 31. The authority citation for part 420 continues to read as follows:

Authority: 49 U.S.C. 70101–70121.

■ 32. Revise the definition of ''public'' in § 420.5 to read as follows:

§ 420.5 Definitions.

* * * * *

Public means people and property that are not involved in supporting a licensed or permitted launch, and includes those people and property that may be located within the boundary of a launch site, such as visitors, any individual providing goods or services not related to launch processing or flight, and any other launch operator and its personnel.

* * * * *

■ 33. Revise § 420.25(b) to read as follows:

§ 420.25 Launch site location review—risk analysis.

* * * * *

(b) For licensed launches, the FAA will not approve the location of the proposed launch point if the estimated expected casualty exceeds 30×10^{-6}.

■ 34. Add § 420.30 to read as follows:

§ 420.30 Launch site location review for permitted launch vehicles.

If an applicant plans to use its proposed launch site solely for launches conducted under an experimental permit, the FAA will approve a launch site location if the FAA has approved an operating area under part 437 for launches from that site.

PART 431—LICENSE FOR LAUNCH AND REENTRY OF A REUSABLE LAUNCH VEHICLE (RLV)

■ 35. The authority citation for part 431 continues to read as follows:

Authority: 49 U.S.C. 70101–70121.

■ 36. Revise § 431.35(d)(7) to read as follows:

§ 431.35 Acceptable reusable launch vehicle mission risk.

* * * * *

(d) * * *

(7) Provide data that verifies the risk elimination and mitigation measures resulting from the applicant's system safety analyses required by paragraph (c) of this section; and

* * * * *

■ 37. Add part 437 to read as follows:

PART 437—EXPERIMENTAL PERMITS

Subpart A—General Information

Sec.
437.1 Scope and organization of this part.
437.3 Definitions.
437.5 Eligibility for an experimental permit.
437.7 Scope of an experimental permit.
437.9 Issuance of an experimental permit.
437.11 Duration of an experimental permit.
437.13 Additional experimental permit terms and conditions.
437.15 Transfer of an experimental permit.
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Subpart B—Requirements to Obtain an Experimental Permit

437.21 General.

Program Description

437.23 Program description.

Flight Test Plan

437.25 Flight test plan.

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437.27 Pre-flight and post-flight operations.
437.29 Hazard analysis.
437.31 Verification of operating area containment and key flight-safety event limitations.
437.33 Landing and impact locations.
437.35 Agreements.
437.37 Tracking.
437.39 Flight rules.
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Subpart C—Safety Requirements

437.51 Rest rules for vehicle safety operations personnel.
437.53 Pre-flight and post-flight operations.
437.55 Hazard analysis.
437.57 Operating area containment.
437.59 Key flight-safety event limitations.
437.61 Landing and impact locations.
437.63 Agreements with other entities involved in a launch or reentry.

437.65 Collision avoidance analysis.
437.67 Tracking a reusable suborbital rocket.
437.69 Communications.
437.71 Flight rules.
437.73 Anomaly recording, reporting and implementation of corrective actions.
437.75 Mishap reporting, responding, and investigating.
437.77 Additional safety requirements.

Subpart D—Terms and Conditions of an Experimental Permit

437.81 Public safety responsibility.
437.83 Compliance with experimental permit.
437.85 Allowable design changes; modification of an experimental permit.
437.87 Records.
437.89 Pre-flight reporting.
437.91 For-hire prohibition.
437.93 Compliance monitoring.
437.95 Inspection of additional reusable suborbital rockets.

Authority: 49 U.S.C. 70101–70102.

Subpart A—General Information

§ 437.1 Scope and organization of this part.

(a) This part prescribes requirements for obtaining an experimental permit. It also prescribes post-permitting requirements with which a permittee must comply to maintain its permit. Part 413 of this subchapter contains procedures for applying for an experimental permit.

(b) Subpart A contains general information about an experimental permit. Subpart B contains requirements to obtain an experimental permit. Subpart C contains the safety requirements with which a permittee must comply while conducting permitted activities. Subpart D contains terms and conditions of an experimental permit.

§ 437.3 Definitions.

Anomaly means a problem that occurs during verification or operation of a system, subsystem, process, facility, or support equipment.

Envelope expansion means any portion of a flight where planned operations will subject a reusable suborbital rocket to the effects of altitude, velocity, acceleration, or burn duration that exceed a level or duration successfully verified during an earlier flight.

Exclusion area means an area, within an operating area, that a reusable suborbital rocket's instantaneous impact point may not traverse.

Key flight-safety event means a permitted flight activity that has an increased likelihood of causing a launch accident compared with other portions of flight.

Operating area means a three-dimensional region where permitted flights may take place.

Permitted vehicle means a reusable suborbital rocket operated by a launch or reentry operator under an experimental permit.

Reentry impact point means the location of a reusable suborbital rocket's instantaneous impact point during its unpowered exoatmospheric suborbital flight.

§ 437.5 Eligibility for an experimental permit.

The FAA will issue an experimental permit to a person to launch or reenter a reusable suborbital rocket only for—

(a) Research and development to test new design concepts, new equipment, or new operating techniques;

(b) A showing of compliance with requirements for obtaining a license under this subchapter; or

(c) Crew training before obtaining a license for a launch or reentry using the design of the rocket for which the permit would be issued.

§ 437.7 Scope of an experimental permit.

An experimental permit authorizes launch or reentry of a reusable suborbital rocket. The authorization includes pre- and post-flight ground operations as defined in this section.

(a) A pre-flight ground operation includes each operation that—

(1) Takes place at a U.S. launch site; and

(2) Meets the following criteria:

(i) Is closely proximate in time to flight,

(ii) Entails critical steps preparatory to initiating flight,

(iii) Is unique to space launch, and

(iv) Is inherently so hazardous as to warrant the FAA's regulatory oversight.

(b) A post-flight ground operation includes each operation necessary to return the reusable suborbital rocket to a safe condition after it lands or impacts.

§ 437.9 Issuance of an experimental permit.

The FAA issues an experimental permit authorizing an unlimited number of launches or reentries for a suborbital rocket design for the uses described in § 437.5.

§ 437.11 Duration of an experimental permit.

An experimental permit lasts for one year from the date it is issued. A permittee may apply to renew a permit yearly under part 413 of this subchapter.

§ 437.13 Additional experimental permit terms and conditions.

The FAA may modify an experimental permit at any time by modifying or adding permit terms and conditions to ensure compliance with 49 U.S.C. Subtitle IX, ch. 701.

§ 437.15 Transfer of an experimental permit.

An experimental permit is not transferable.

§ 437.17 Rights not conferred by an experimental permit.

Issuance of an experimental permit does not relieve a permittee of its obligation to comply with any requirement of law that applies to its activities.

Subpart B—Requirements To Obtain an Experimental Permit

§ 437.21 General.

To obtain an experimental permit an applicant must make the demonstrations and provide the information required by this section.

(a) *This subpart.* An applicant must provide a program description, a flight test plan, and operational safety documentation as required by this subpart.

(b) *Other regulations.* (1) *Environmental.* An applicant must provide enough information for the FAA to analyze the environmental impacts associated with proposed reusable suborbital rocket launches or reentries. The information provided by an applicant must be sufficient to enable the FAA to comply with the requirements of the National Environmental Policy Act, 42 U.S.C. 4321 *et seq.*, and the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, 40 CFR parts 1500–1508.

(2) *Financial responsibility.* An applicant must provide the information required by part 3 of appendix A of part 440 for the FAA to conduct a maximum probable loss analysis.

(3) *Human space flight.* An applicant proposing launch or reentry with flight crew or a space flight participant on board a reusable suborbital rocket must demonstrate compliance with §§ 460.5, 460.7, 460.11, 460.13, 460.15, 460.17, 460.51 and 460.53 of this subchapter.

(c) *Use of a safety approval.* If an applicant proposes to use any reusable suborbital rocket, safety system, process, service, or personnel for which the FAA has issued a safety approval under part 414 of this subchapter, the FAA will not reevaluate that safety element to the extent its use is within its approved

envelope. As part of the application process, the FAA will evaluate the integration of that safety element into vehicle systems or operations.

(d) *Inspection before issuing a permit.* Before the FAA issues an experimental permit, an applicant must make each reusable suborbital rocket planned to be flown available to the FAA for inspection. The FAA will determine whether each reusable suborbital rocket is built as represented in the application.

(e) *Other requirements.* The FAA may require additional analyses, information, or agreements if necessary to protect public health and safety, safety of property, and national security and foreign policy interests of the United States.

Program Description

§ 437.23 Program description.

(a) An applicant must provide—

(1) Dimensioned three-view drawings or photographs of the reusable suborbital rocket; and

(2) Gross liftoff weight and thrust profile of the reusable suborbital rocket.

(b) An applicant must describe—

(1) All reusable suborbital rocket systems, including any structural, flight control, thermal, pneumatic, hydraulic, propulsion, electrical, environmental control, software and computing systems, avionics, and guidance systems used in the reusable suborbital rocket;

(2) The types and quantities of all propellants used in the reusable suborbital rocket;

(3) The types and quantities of any hazardous materials used in the reusable suborbital rocket;

(4) The purpose for which a reusable suborbital rocket is to be flown; and

(5) Each payload or payload class planned to be flown.

(c) An applicant must identify any foreign ownership of the applicant as follows:

(1) For a sole proprietorship or partnership, identify all foreign ownership,

(2) For a corporation, identify any foreign ownership interests of 10% or more, and

(3) For a joint venture, association, or other entity, identify any participating foreign entities.

Flight Test Plan

§ 437.25 Flight test plan.

An applicant must—

(a) Describe any flight test program, including estimated number of flights and key flight-safety events.

(b) Identify and describe the geographic coordinates of the boundaries of one or more proposed operating areas where it plans to perform its flights and that satisfy § 437.57(b) of subpart C. The FAA may designate one or more exclusion areas in accordance with § 437.57(c) of subpart C.

(c) For each operating area, provide the planned maximum altitude of the reusable suborbital rocket.

Operational Safety Documentation

§ 437.27 Pre-flight and post-flight operations.

An applicant must demonstrate how it will meet the requirements of § 437.53(a) and (b) to establish a safety clear zone and verify that the public is outside that zone before and during any hazardous operation.

§ 437.29 Hazard analysis.

(a) An applicant must perform a hazard analysis that complies with § 437.55(a).

(b) An applicant must provide to the FAA all the results of each step of the hazard analysis required by paragraph (a) of this section.

§ 437.31 Verification of operating area containment and key flight-safety event limitations.

(a) An applicant must identify, describe, and provide verification evidence of the methods and systems used to meet the requirement of § 437.57(a) to contain its reusable suborbital rocket's instantaneous impact point within an operating area and outside any exclusion area. The description must include, at a minimum—

(1) Proof of physical limits on the ability of the reusable suborbital rocket to leave the operating area; or

(2) Abort procedures and other safety measures derived from a system safety engineering process.

(b) An applicant must identify, describe, and provide verification evidence of the methods and systems used to meet the requirements of § 437.59 to conduct any key flight-safety event so that the reusable suborbital rocket's instantaneous impact point, including its expected dispersions, is over unpopulated or sparsely populated areas, and to conduct each reusable suborbital rocket flight so that the reentry impact point does not loiter over a populated area.

§ 437.33 Landing and impact locations.

An applicant must demonstrate that each location for nominal landing or any contingency abort landing of the reusable suborbital rocket, and each location for any nominal or contingency impact or landing of a component of that rocket, satisfies § 437.61.

§ 437.35 Agreements.

An applicant must enter into the agreements required by § 437.63, and provide a copy to the FAA.

§ 437.37 Tracking.

An applicant must identify and describe each method or system used to meet the tracking requirements of § 437.67.

§ 437.39 Flight rules.

An applicant must provide flight rules as required by § 437.71.

§ 437.41 Mishap response plan.

An applicant must provide a mishap response plan that meets the requirements of § 437.75(b).

Subpart C—Safety Requirements

§ 437.51 Rest rules for vehicle safety operations personnel.

A permittee must ensure that all vehicle safety operations personnel adhere to the work and rest standards in this section during permitted activities.

(a) No vehicle safety operations personnel may work more than:

(1) 12 consecutive hours,

(2) 60 hours in the 7 days preceding a permitted activity, or

(3) 14 consecutive work days.

(b) All vehicle safety operations personnel must have at least 8 hours of rest after 12 hours of work.

(c) All vehicle safety operations personnel must receive a minimum 48-hour rest period after 5 consecutive days of 12-hour shifts.

§ 437.53 Pre-flight and post-flight operations.

A permittee must protect the public from adverse effects of hazardous operations and systems in preparing a reusable suborbital rocket for flight at a launch site in the United States and returning the reusable suborbital rocket and any support equipment to a safe condition after flight. At a minimum, a permittee must—

(a) Establish a safety clear zone that will contain the adverse effects of each operation involving a hazard; and

(b) Verify that the public is outside of the safety clear zone before and during any hazardous operation.

§ 437.55 Hazard analysis.

(a) A permittee must identify and characterize each of the hazards and assess the risk to public health and safety and the safety of property resulting from each permitted flight. This hazard analysis must—

(1) Identify and describe hazards, including but not limited to each of those that result from—

(i) Component, subsystem, or system failures or faults;

(ii) Software errors;

(iii) Environmental conditions;

(iv) Human errors;

(v) Design inadequacies; or

(vi) Procedural deficiencies.

(2) Determine the likelihood of occurrence and consequence for each hazard before risk elimination or mitigation.

(3) Ensure that the likelihood and consequence of each hazard meet the following criteria through risk elimination and mitigation measures:

(i) The likelihood of any hazardous condition that may cause death or serious injury to the public must be extremely remote.

(ii) The likelihood of any hazardous condition that may cause major property damage to the public, major safety-critical system damage or reduced capability, a significant reduction in safety margins, or a significant increase in crew workload must be remote.

(4) Identify and describe the risk elimination and mitigation measures required to satisfy paragraph (a)(3) of this section. The measures must include one or more of the following:

(i) Designing for minimum risk,

(ii) Incorporating safety devices,

(iii) Providing warning devices, or

(iv) Implementing procedures and training.

(5) Demonstrate that the risk elimination and mitigation measures achieve the risk levels of paragraph (a)(3)(i) of this section through validation and verification. Verification includes:

(i) Test data,

(ii) Inspection results, or

(iii) Analysis.

(b) A permittee must carry out the risk elimination and mitigation measures derived from its hazard analysis.

(c) A permittee must ensure the continued accuracy and validity of its hazard analysis throughout the term of its permit.

§ 437.57 Operating area containment.

(a) During each permitted flight, a permittee must contain its reusable suborbital rocket's instantaneous impact point within an operating area determined in accordance with paragraph (b) and outside any exclusion area defined by the FAA in accordance with paragraph (c) of this section.

(b) An operating area—

(1) Must be large enough to contain each planned trajectory and all expected vehicle dispersions;

(2) Must contain enough unpopulated or sparsely populated area to perform key flight-safety events as required by § 437.59;

(3) May not contain or be adjacent to a densely populated area or large concentrations of members of the public; and

(4) May not contain or be adjacent to significant automobile traffic, railway traffic, or waterborne vessel traffic.

(c) The FAA may prohibit a reusable suborbital rocket's instantaneous impact point from traversing certain areas within an operating area by designating one or more areas as exclusion areas, if necessary to protect public health and safety, safety of property, or foreign policy or national security interests of the United States. An exclusion area may be confined to a specific phase of flight.

§ 437.59 Key flight-safety event limitations.

(a) A permittee must conduct any key flight-safety event so that the reusable suborbital rocket's instantaneous impact point, including its expected dispersion, is over an unpopulated or sparsely populated area. At a minimum, a key flight-safety event includes:

(1) Ignition of any primary rocket engine,

(2) Any staging event, or

(3) Any envelope expansion.

(b) A permittee must conduct each reusable suborbital rocket flight so that the reentry impact point does not loiter over a populated area.

§ 437.61 Landing and impact locations.

For a nominal or any contingency abort landing of a reusable suborbital rocket, or for any nominal or contingency impact or landing of a component of that rocket, a permittee must use a location that—

(a) Is big enough to contain an impact, including debris dispersion upon impact; and

(b) At the time of landing or impact, does not contain any members of the public.

§ 437.63 Agreements with other entities involved in a launch or reentry.

A permittee must comply with the agreements required by this section.

(a) A permittee must have an agreement in writing with a Federal launch range operator, a licensed launch site operator, or any other party that provides access to or use of property and services required to support the safe launch or reentry under a permit.

(b) Unless otherwise addressed in agreements with a licensed launch site operator or a Federal launch range, a permittee must have an agreement in writing with the following:

(1) For overflight of navigable water, a written agreement between the applicant and the local United States Coast Guard district to establish procedures for issuing a Notice to Mariners before a permitted flight, and

(2) A written agreement between the applicant and responsible Air Traffic Control authority having jurisdiction over the airspace through which a permitted launch or reentry is to take place, for measures necessary to ensure the safety of aircraft. The agreement must, at a minimum, demonstrate satisfaction of §§ 437.69(a) and 437.71(d).

§ 437.65 Collision avoidance analysis.

(a) For a permitted flight with a planned maximum altitude greater than 150 kilometers, a permittee must obtain a collision avoidance analysis from United States Strategic Command.

(b) The collision avoidance analysis must establish each period during which a permittee may not initiate flight to ensure that a permitted vehicle and any jettisoned components do not pass closer than 200 kilometers to a manned or mannable orbital object. A distance of less than 200 kilometers may be used if the distance provides an equivalent level of safety, and if the distance accounts for all uncertainties in the analysis.

§ 437.67 Tracking a reusable suborbital rocket.

A permittee must—

(a) During permitted flight, measure in real time the position and velocity of its reusable suborbital rocket; and

(b) Provide position and velocity data to the FAA for post-flight use.

§ 437.69 Communications.

(a) A permittee must be in communication with Air Traffic Control during all phases of flight.

(b) A permittee must record communications affecting the safety of the flight.

§ 437.71 Flight rules.

(a) Before initiating rocket-powered flight, a permittee must confirm that all systems and operations necessary to ensure that safety measures derived from §§ 437.55, 437.57, 437.59, 437.61, 437.63, 437.65, 437.67, and 437.69 are within acceptable limits.

(b) During all phases of flight, a permittee must—

(1) Follow flight rules that ensure compliance with §§ 437.55, 437.57, 437.59, and 437.61; and

(2) Abort the flight if it would endanger the public.

(c) A permittee may not operate a reusable suborbital rocket in a careless

or reckless manner that would endanger any member of the public during any phase of flight.

(d) A permittee may not operate a reusable suborbital rocket in areas designated in a Notice to Airmen under § 91.137, § 91.138, § 91.141, or § 91.145 of this title, unless authorized by:

(1) Air Traffic Control; or

(2) A Flight Standards Certificate of Waiver or Authorization.

(e) For any phase of flight where a permittee operates a reusable suborbital rocket like an aircraft in the National Airspace System, a permittee must comply with the provisions of part 91 of this title specified in an experimental permit issued under this part.

§ 437.73 Anomaly recording, reporting and implementation of corrective actions.

(a) A permittee must record each anomaly that affects a safety-critical system, subsystem, process, facility, or support equipment.

(b) A permittee must identify all root causes of each anomaly, and implement all corrective actions for each anomaly.

(c) A permittee must report to the FAA any anomaly of any system that is necessary for complying with §§ 437.55(a)(3), 437.57, and 437.59, and must report the corrective action for each reported anomaly.

(d) A permittee must implement each corrective action before the next flight.

§ 437.75 Mishap reporting, responding, and investigating.

A permittee must report, respond to, and investigate mishaps that occur during permitted activities, in accordance with this section.

(a) Reporting requirements. A permittee must—

(1) Immediately notify the FAA Washington Operations Center if there is a launch or reentry accident or incident or a mishap that involves a fatality or serious injury, as defined in 49 CFR 830.2;

(2) Notify within 24 hours the FAA's Office of Commercial Space Transportation if there is a mishap that does not involve a fatality or serious injury, as defined in 49 CFR 830.2; and

(3) Submit within 5 days of the event a written preliminary report to the FAA's Office of Commercial Space Transportation if there is a launch or reentry accident or incident during a permitted flight. The report must identify the event as a launch or reentry accident or incident, and must include:

(i) The date and time of occurrence,

(ii) A description of the event and sequence of events leading to the launch or reentry accident, or launch or reentry incident, to the extent known,

(iii) The intended and actual location of launch or reentry, including landing or impact on Earth,

(iv) A description of any payload,

(v) The number and general description of any fatalities and injuries,

(vi) Property damage, if any, and an estimate of its value,

(vii) A description of any hazardous materials involved in the event, whether on the reusable suborbital rocket or on the ground,

(viii) Action taken by any person to contain the consequences of the event, and

(ix) Weather conditions at the time of the event.

(b) Response requirements. A permittee must—

(1) Immediately—

(i) Ensure the consequences of a mishap are contained and minimized; and

(ii) Ensure data and physical evidence are preserved.

(2) Report to and cooperate with FAA and National Transportation Safety Board (NTSB) investigations and designate one or more points of contact for the FAA or NTSB; and

(3) Identify and adopt preventive measures for avoiding a recurrence of the event.

(c) Investigation requirements. A permittee must—

(1) Investigate the root cause of an event described in paragraph (a) of this section;

(2) Report investigation results to the FAA upon completion; and

(3) Identify responsibilities, including reporting responsibilities, for personnel assigned to conduct investigations and for any unrelated persons that the permittee retains to conduct or participate in investigations.

§ 437.77 Additional safety requirements.

The FAA may impose additional safety requirements on an applicant or permittee proposing an activity with a hazard not otherwise addressed in this part. This may include a toxic hazard or the use of solid propellants. The FAA may also require the permittee to conduct additional analyses of the cause of any anomaly and corrective actions.

Subpart D—Terms and Conditions of an Experimental Permit

§ 437.81 Public safety responsibility.

A permittee must ensure that a launch or reentry conducted under an experimental permit is safe, and must protect public health and safety and the safety of property.

§ 437.83 Compliance with experimental permit.

A permittee must conduct any launch or reentry under an experimental permit in accordance with representations made in its permit application, with subparts C and D of this part, and with terms and conditions contained in the permit.

§ 437.85 Allowable design changes; modification of an experimental permit.

(a) The FAA will identify in the experimental permit the type of changes that the permittee may make to the reusable suborbital rocket design without invalidating the permit.

(b) Except for design changes made under paragraph (a) of this section, a permittee must ask the FAA to modify the experimental permit if—

(1) It proposes to conduct permitted activities in a manner not authorized by the permit; or

(2) Any representation in its permit application that is material to public health and safety or the safety of property is no longer accurate or complete.

(c) A permittee must prepare an application to modify an experimental permit and submit it in accordance with part 413 of this subchapter. If requested during the application process, the FAA may approve an alternate method for requesting permit modifications. The permittee must indicate any part of its permit that would be changed or affected by a proposed modification.

(d) When a permittee proposes a modification, the FAA reviews the determinations made on the experimental permit to decide whether they remain valid.

(e) When the FAA approves a modification, it issues the permittee either a written approval or a permit order modifying the permit if a stated term or condition of the permit is changed, added, or deleted. An approval has the full force and effect of a permit order and is part of the permit record.

§ 437.87 Records.

(a) Except as required by paragraph (b) of this section, a permittee must maintain for 3 years all records, data, and other material necessary to verify that a permittee conducted its launch or reentry in accordance with its permit.

(b) If there is a launch or reentry accident or incident, a permittee must preserve all records related to the event. A permittee must keep the records until after any Federal investigation and the FAA advises the permittee that it may dispose of them.

(c) A permittee must make all records that it must maintain under this section

available to Federal officials for inspection and copying.

§ 437.89 Pre-flight reporting.

(a) Not later than 30 days before each flight or series of flights conducted under an experimental permit, a permittee must provide the FAA with the following information:

(1) Any payload to be flown, including any payload operations during the flight,

(2) When the flight or series of flights are planned,

(3) The operating area for each flight, and

(4) The planned maximum altitude for each flight.

(b) Not later than 15 days before each permitted flight planned to reach greater than 150 km altitude, a permittee must provide the FAA its planned trajectory for a collision avoidance analysis.

§ 437.91 For-hire prohibition.

No permittee may carry any property or human being for compensation or hire on a reusable suborbital rocket.

§ 437.93 Compliance monitoring.

A permittee must allow access by, and cooperate with, federal officers or employees or other individuals authorized by the FAA to observe any activities of the permittee, or of its contractors or subcontractors, associated with the conduct of permitted activities.

§ 437.95 Inspection of additional reusable suborbital rockets.

A permittee may launch or reenter additional reusable suborbital rockets of the same design under the permit after the FAA inspects each additional reusable suborbital rocket.

Issued in Washington, DC, on March 23, 2007.

Marion C. Blakey,

Administrator.

[FR Doc. E7–6194 Filed 4–5–07; 8:45 am]

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DEPARTMENT OF HOMELAND SECURITY

Coast Guard

33 CFR Part 100

[CGD09–07–009]

RIN 1625–AA08

Safety of Life on Navigable Waters; Great Lakes Annual Marine Events

AGENCY: Coast Guard, DHS.

ACTION: Notice of enforcement of regulation.

SUMMARY: The Coast Guard will enforce the Tulip Time Fireworks and Water Ski Show special local regulation on Lake Macatawa in Holland, Michigan on May 4, 2007. This action is necessary to protect the public from the hazards associated with fireworks displays. During the enforcement period no person or vessel may enter the regulated area without the permission of the Captain of the Port or his designated representative.

DATES: Enforced from 7 p.m. through 11 p.m. on May 4, 2007. In the event of inclement weather on May 4, 2007 this regulation will be enforced from 7 p.m. through 11 p.m. on May 5, 2007.

FOR FURTHER INFORMATION CONTACT: CWO Brad Hinken, Prevention Department, Coast Guard Sector Lake Michigan, 2420 South Lincoln Memorial Drive, Milwaukee, WI at (414) 747–7154.

SUPPLEMENTARY INFORMATION: We are publishing this document to provide notice that under the provisions of 33 CFR 100.901, Group Grand Haven, MI: Tulip Time Fireworks and Water Ski Show will be enforced on May 4, 2007 from 7 p.m. through 11 p.m. In case of inclement weather on May 4, 2007 this regulation will be enforced on May 5, 2007 from 7 p.m. through 11 p.m. The regulated area consists of all waters and adjacent shoreline of Lake Macatawa, Holland Harbor, east of a north-south line, from shore to shore, at position 086°08′W (NAD 1983).

In order to ensure the safety of spectators and transiting vessels, this regulated area will be in effect for the duration of the event. In the event that this regulated area affects shipping, commercial vessels may request permission from the Captain of the Port Lake Michigan to transit through the regulated area.

Requests must be made in advance and approved by the Captain of Port before transits will be authorized. The Captain of the Port may be contacted via U.S. Coast Guard Sector Lake Michigan on channel 16, VHF–FM. The Coast Guard will give notice to the public via a Broadcast Notice to Mariners that the regulation is in effect.

Dated: March 29, 2007.

B.C. Jones,

Captain, U.S. Coast Guard, Captain of the Port Sector Lake Michigan.

[FR Doc. E7–6362 Filed 4–5–07; 8:45 am]

BILLING CODE 4910–15–P

DEPARTMENT OF HOMELAND SECURITY

Coast Guard

33 CFR Part 165

[CGD09–07–010]

RIN 1625–AA00

Safety Zones; Annual Fireworks Events in the Captain of the Port Milwaukee Zone

AGENCY: Coast Guard, DHS.

ACTION: Notice of enforcement of regulation.

SUMMARY: The Coast Guard will enforce the Rockets for Schools safety zone on Lake Michigan near Sheboygan, WI on May 5, 2007. This action is necessary to protect the public from the hazards associated with rocket launches. During the enforcement period no person or vessel may enter the safety zone without the permission of the Captain of the Port or his designated representative.

DATES: The zone will be enforced from 9 a.m. through 4 p.m. on May 5, 2007.

FOR FURTHER INFORMATION CONTACT: CWO Brad Hinken, Prevention Department, Coast Guard Sector Lake Michigan, 2420 South Lincoln Memorial Drive, Milwaukee, WI at (414) 747–7154.

SUPPLEMENTARY INFORMATION: We are publishing this document to provide notice that under the provisions of 33 CFR 165.909(a)(12), the Rockets for Schools safety zone on Lake Michigan near Sheboygan, WI will be enforced on May 5, 2007 from 9 a.m. through 4 p.m. The safety zone consists of all waters and adjacent shoreline around the south breakwall area, Lake Michigan encompassed by the arc of a circle with a 1260-foot radius with its center in position 43°44′56″ N, 087°42′06″ W (NAD 83). This zone will encompass the entrance to Sheboygan Harbor and will result in its closure while the safety zone is in effect.

In order to ensure the safety of spectators and transiting vessels, this safety zone will be in effect for the duration of the event. In the event that this safety zone effects shipping, commercial vessels may request permission from the Captain of the Port Lake Michigan to transit through the safety zone.

Requests must be made in advance and approved by the Captain of the Port before transits will be authorized. The Captain of the Port may be contacted via U.S. Coast Guard Sector Lake Michigan on channel 16, VHF–FM. The Coast