

DEPARTMENT OF TRANSPORTATION**Federal Aviation Administration****14 CFR Parts 401, 411, 413, 415 and 417**

[Docket No. 28851; Notice No. 97-2]

RIN 2120-AF99

Commercial Space Transportation Licensing Regulations**AGENCY:** Federal Aviation Administration (FAA), DOT.**ACTION:** Notice of proposed rulemaking (NPRM).

SUMMARY: The Office of the Associate Administrator for Commercial Space Transportation (the Office) of the Federal Aviation Administration, Department of Transportation (DOT) is proposing to amend the licensing regulations for launching commercial launch vehicles. The Office proposes to amend its licensing regulations in order to clarify its license application process for launch vehicles launching from federal launch ranges. The proposed regulations are intended to provide applicants and licensees greater specificity and clarity regarding the scope of a license, and regarding licensing requirements and criteria.

DATES: Comments must be received on or before May 19, 1997.

ADDRESSES: An original and four copies of comments on this NPRM should be addressed to: Federal Aviation Administration, Office of the Chief Counsel, Attention: Rules Docket (AGC-200), Docket No. 28851, 800 Independence Avenue, SW., Washington, DC 20591. Comments may also be sent electronically to the Rules Docket by using the following internet address: nprmcmt@mail.hq.faa.gov. Comments may be examined in the Rules Docket in Room 915G on weekdays between 8:30 a.m. and 5:00 p.m., except federal holidays.

FOR FURTHER INFORMATION CONTACT: J. Randall Repcheck, Licensing and Safety Division, (AST-200), Associate Administrator for Commercial Space Transportation, Federal Aviation Administration, DOT, Room 5402a, 400 Seventh Street, Washington, DC 20590; telephone (202) 366-2258; or Laura Montgomery, Office of the Chief Counsel, (AGC-200), Federal Aviation Administration, DOT, Room 10424, 400 Seventh Street, Washington, DC 20590; telephone (202) 366-9305.

SUPPLEMENTARY INFORMATION:

Availability of NPRM: Any person may obtain a copy of this NPRM by submitting a request to the Federal Aviation Administration, Office of Rulemaking, 800 Independence Avenue SW., Washington, DC 20591, or by calling (202) 267-9677.

Communications must identify the notice number of this NPRM. Persons interested in being placed on a mailing list for future FAA NPRMs should request a copy of Advisory Circular No. 11-2A, Notice of Proposed Rulemaking Distribution System, which describes application procedures.

An electronic copy of this document may be downloaded using a modem and suitable communications software from the FAA regulations section of the Fedworld electronic bulletin board service (telephone: 703-321-3339) or the Federal Register's electronic bulletin board service (telephone 202-512-1661). Internet users may reach the FAA's web page at <http://www.faa.gov> or the Federal Register's webpage at <http://www.access.gpo.gov/su-docs> for access to recently published rulemaking documents.

I. Introduction

By this Notice of Proposed Rulemaking (Notice or NPRM), the Office proposes to clarify license application procedures and requirements for conducting commercial space launches. This Notice provides information regarding the scope of a launch license with respect to expendable launch vehicles (ELVs) launching from federal launch ranges, the criteria for obtaining a license, and the underlying safety rationale for the Office's launch licensing regime.

II. Background

The Commercial Space Launch Act of 1984, as codified at 49 U.S.C. Subtitle IX—Commercial Space Transportation, ch. 701, Commercial Space Launch Activities, 49 U.S.C. 70101-70119 (1994) (the Act), authorizes the Secretary of Transportation to oversee, license and regulate commercial launch activities and the operation of launch sites as carried out by U.S. citizens or within the United States. 49 U.S.C. 70104, 70105. The Act directs the Secretary 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. 49 U.S.C. 70105. The Office carries out the Secretary's responsibilities for licensing launches and the operation of launch sites, and for encouraging, facilitating and

promoting commercial space launches by the private sector. 49 U.S.C. § 70103. Prior to November 15, 1995, the Secretary's responsibilities were implemented by the Office of Commercial Space Transportation, which was located within the Office of the Secretary in the Department of Transportation. Now, the Associate Administrator for Commercial Space Transportation is part of DOT's Federal Aviation Administration. When this administrative change was effected, the Secretary delegated this authority to the Administrator of the Federal Aviation Administration, and the Administrator redelegated this authority to the Associate Administrator.

On August 4, 1994, President Clinton announced a new National Space Transportation Policy reaffirming the government's commitment to the commercial space transportation industry and the critical role of the Department of Transportation in encouraging and facilitating private sector launch activities. The Office's proposed rules, by offering greater specificity and certainty regarding licensing requirements and the scope of a license, should assist the launch industry in its business and operational planning. This will facilitate the private sector's launch activities by increasing certainty and by easing its regulatory burden.

A. Background on the Office's Commercial Launch Licensing

The Office licenses commercial launches and the commercial operation of launch sites in accordance with 14 CFR Ch. III. In April 1988, when the Office first issued final rules, no commercial launches had yet taken place. Accordingly, the Office established a flexible regime intended to be responsive to an emerging industry while at the same time ensuring public safety. The Office noted that it would "continue to evaluate and, when necessary, reshape its program in response to growth, innovation and diversity in this critically important industry." *Commercial Space Transportation; Licensing Regulations*, 53 FR 11004, 11006 (1988). Under the 1988 regulations the Office implemented a case-by-case approach to evaluate launch license applications. All commercial launches at the time took place from federal launch ranges. In conjunction with information guidelines describing the Office's application process, the Office's regulations reflected the intent of Congress that the Office evaluate the policy aspects and safety of a proposed launch. The Office followed a case-by-

case approach to performing these reviews, tailoring its information requests to the specifics of a given launch proposal.

Since then, the Office has taken further steps designed to simplify the licensing process for launch operators with established safety records. For example, before issuing its final rules in 1988, the Office issued interim regulations, in which it had contemplated the possibility that "one license could cover a specified series of launches where the same safety resources [would] support identical or similar missions." *Commercial Space Transportation; Licensing Regulations; Interim Final Rule and Request for Comments*, 51 FR 6870, 6872 (1986).

In 1991, the Office implemented this option by instituting a launch operator license for similar launches carried out by a single licensee. The launch operator license currently authorizes a licensee to conduct any number of launches within defined parameters over the course of a two year period. The Office has continued to apply a case-by-case analysis to licenses authorizing a single launch or to licenses authorizing a set of specific launches.

The Office, in accordance with 49 U.S.C. 70112, imposes financial responsibility requirements on a licensee, commensurate with the scope of the license, pursuant to which a licensee is required either to purchase insurance to protect launch participants in the event of claims by third parties and to protect against damage to government property, or to otherwise demonstrate financial responsibility. In the event that there were a launch accident and third party claims arising out of that launch exceeded the financial responsibility required by the Office, the Act contains procedures through which the government of the United States may pay those excess claims up to a statutory ceiling. See 49 U.S.C. 70113. The possible payment of excess claims by the government for damages related to a particular launch is commonly referred to, albeit erroneously, as "indemnification" of the launch industry. The payment of excess claims constitutes, in fact, only a provisional agreement by the government of the United States subject to conditions, including Congressional appropriation of funds.

In order to enhance the Office's communications with the public, the Office developed an internet-based information system which provides the public with electronic access to the Office. The system provides on-line information to interested parties, and

allows applicants, through a secure portion of the system, to submit applications and related documents electronically and to check the status of applications and licenses. The system currently contains a limited amount of information, but includes schedules of upcoming commercial launches, the Office's regulations, guidance documents, and research studies. The address is: <http://www.dot.gov/faa/cst/>.

B. Growth and Current Status of Launch Industry

The number of commercial space launches has increased over the years since the first licensed commercial launch in 1989. As of February 21, 1996, fifty-seven licensed launches have taken place from five different federal launch ranges. Launch vehicles have included traditional orbital launch vehicles such as the Atlas, Titan and Delta, as well as suborbital vehicles such as the Starfire. New vehicles using traditional launch techniques include the Lockheed Martin Launch Vehicle (LMLV1) and Conestoga. Unique vehicles such as the Pegasus are also included in this count.

New concepts for launch vehicles are proposed every year. For example, the Pegasus air-launched rocket has been developed since the passage of the Act. On the horizon are sea-launched rockets, balloon-launched rockets, and partially reusable single-stage-to-orbit vehicles. McDonnell Douglas is developing the Delta III, the next in the Delta family of launch vehicles. Several companies are participating in partnership with the National Aeronautics and Space Administration (NASA) to develop the DC-XA and X-33 launch vehicles incorporating reusable and single-stage-to-orbit technology.

Currently, commercial launches take place from federal launch ranges operated by the Department of Defense and NASA. Launch operators bring launch vehicles to federal ranges such as Cape Canaveral Air Station, Vandenberg Air Force Base, White Sands Missile Range or Wallops Flight Facility for launch. A launch operator obtains a number of services from a federal range, including radar, tracking and telemetry, flight termination and other launch services. Pursuant to an agreement between the federal range and the launch operator, the federal range has final authority over decisions regarding whether to allow a launch to proceed. A federal range operates pursuant to its own internal rules and procedures, and the launch operator must comply with those rules and procedures.

The U.S. commercial space transportation industry faces strong

international competition. Ariane, the European launch vehicle, continues to be the market leader, with other competition coming from China, Russia, and Ukraine. The U.S. industry still obtains a significant percentage of launch contracts, and approximately thirty commercial launches are planned within the next three years.

Additionally, U.S. participation in international ventures is increasing. For example, International Launch Services (ILS), comprised of Lockheed Martin Corporation, Khrunichev Enterprise and NPO Energia, markets Russia's Proton rockets and the U.S. Atlas. Another partnership, Sea Launch Limited Partnership (Sea Launch), involves Boeing Commercial Space Company, S.P. Korolev Rocket and Space Corporation Energia, KB Yuzhnoye and PO Yuzhnoye Mashinostroitelny Zavod, and Kvaerner Moss Technologies a.s., which are U.S., Russian, Ukrainian and Norwegian companies, respectively. Sea Launch plans to launch commercial rockets from a modified oil rig located in the Pacific Ocean.

C. Current Proposal to Revise Licensing Rules

With six years of experience in regulating the commercial launch industry, the Office initiated a process for standardizing its licensing regulations. Originally, when the Office first initiated its licensing program, the Office did not possess standardized rules or requirements. Accordingly, it evaluated each application individually to ensure that a proposed launch would not jeopardize public health and safety, the safety of property, U.S. national security or foreign policy interests or international obligations of the United States. Over the course of time, and with the input of licensees and federal launch ranges, the Office has evolved a standardized approach to licensing launches from federal launch ranges. Accordingly, the Office now proposes to implement that approach through revisions to its regulations.

On October 13, 1994, in anticipation of issuing a notice of proposed rulemaking, the Office announced that it was holding a public meeting to obtain industry's views to assist the Office in developing an NPRM addressing specific requirements for launch and launch site operator licenses. Notice of Public Meeting, 59 FR 52020 (1994). The Office stated that it would streamline its launch licensing process by standardizing requirements and by codifying certain information requirements in its regulations. *Id.* The Office also advised the public that it would promulgate rules concerning

licensing the operation of a launch site. *Id.* Recently, the Office has been advised of a number of proposals for commercial operation of a launch site. The Office proposes to implement rules of general applicability for launch site operation through an additional notice of proposed rulemaking in order to foster certainty for this new industry as well. *Id.*

The public meeting took place on October 27, and 28, 1994, and was attended by representatives of the commercial launch industry, payload companies, prospective commercial launch site operators, interested government agencies and the public. Comments received at the meeting and in subsequent written submissions to the docket proved informative and helpful. Public meeting participants expressed views on a number of topics, including the appropriate scope of a launch license and whether Office oversight duplicates that of the federal ranges. Comments on the nature of a safety review were directed for the most part to proposed new vehicle systems such as reusable and single-stage-to-orbit vehicles. Prospective launch site operators expressed their interest in a flexible licensing program, and addressed some of the particulars of risk management.

After the meeting, participants took advantage of the opportunity to submit written comments. A total of thirteen written comments were received from a broad spectrum of the aerospace industry, including launch services providers such as Lockheed Martin, McDonnell Douglas and Orbital Sciences, and from prospective site operators such as Alaska Aerospace Development Corporation, Spaceport Florida Authority and the Western Commercial Space Center. The topics focussed mainly on integration of federal ranges into the licensing process, the scope of launch and site licenses, and the relationship between site operators and launch operators. The ideas expressed were consistent with those voiced at the public meeting, including the desire for a flexible regulatory regime, performance standards rather than design standards, and a strong interest in avoiding overlapping or conflicting government requirements.

D. Subsequent Changes to the Office's Rules

The Office's regulatory agenda includes other issues as well as the launch licensing rule amendments proposed in this Notice. The first phase of the Office's agenda addresses industry's two most pressing needs: the

Office's financial responsibility requirements, which are addressed in a separate notice of proposed rulemaking, and standardization of the Office's licensing requirements for launches from federal launch ranges. This Notice proposes to codify the Office's current launch licensing program, and to clarify how federally operated launch site services and approval processes fit within the Office's licensing regime.

Future efforts will address other issues. The Office is aware that enterprises contemplating international ventures are interested in determining when a license is required. For example, if a U.S. citizen plans to launch from a foreign country, the Act requires that the U.S. citizen obtain a license to do so. If a U.S. citizen is conducting the launch in conjunction with a foreign entity, when does the involvement of the U.S. citizen reach the point that the U.S. citizen should be considered to be launching the launch vehicle? Must the U.S. launch operator have the right to make the lift-off decision or have control over the flight termination system before the Office considers the U.S. company to be launching the launch vehicle? Must the U.S. company participate in the manufacture or integration of the launch vehicle? Must the U.S. company possess the ability to impose requirements on the operator of the launch site? If the launch site operator is a foreign government does that divest the U.S. citizen of control over its launch to the extent that it cannot be said to be conducting the launch?

To date, the Office has not received concrete proposals on these issues, but has instead dealt only with the paradigm situation of launch from a federally owned and operated range. There, the launch operator provides a launch vehicle, integrates the vehicle and payload, and prepares for launch. Although the federal range has final authority over whether flight may occur, the launch operator has the final decision over whether to commit to flight. As the Office has interpreted its responsibilities to date, this combination of activities and responsibilities amounts to the launch of a launch vehicle by the launch operator. Some or all of the activities which provide a basis for this conclusion may be necessary for the Office to make a determination that a launch operator is conducting a launch. Which specific activities are considered necessary elements of the conduct of a launch and which are not is a question the Office has yet to confront in the context of foreign involvement.

The Office expects that the issue will arise not only in the international context but also in the context of launches occurring from commercial launch sites. The Office's initial view is that it does not want to compel the formation of business ventures in particular ways or distort business decisions by issuing rules regarding hypothetical situations, and will make decisions only on the basis of facts before it. The Office would, however, be interested in receiving additional information or opinions on this issue.

The Office will also propose rules regarding licensing the operation of a launch site not operated by a federal launch range. The Office is conducting research on safety standards to govern the operation of a launch site. It is also analyzing the question of who requires a license to operate a launch site either at or near a federal launch range or at a location not associated with federal operations.

The commercial launch industry has recently begun work on the development of reusable components or launch vehicles, although none are commercially available yet, and no applications to launch a reusable launch vehicle have been filed. In anticipation of future commercial development, and in order to develop standards in this area, the Office has begun a research program to develop safety regulations and standards. Until such safety standards and regulations are developed, the Office recognizes that licensing of reusable launch vehicles would be conducted on a case by case basis. The Office's recent move to the FAA should provide access to helpful "lessons learned" from regulation of aircraft. In the meantime, an applicant for a license to launch a reusable launch vehicle may rely upon parts 413 and 415 to the extent applicable.

The Office will address other issues in future rulemakings as well. The Office intends to update its administrative procedures and will institute new rules regarding compliance monitoring, enforcement, and investigation procedures. It also plans to update the amateur rocket exemption. In the longer term, the Office is also actively pursuing, through research and coordination with industry and other government agencies, regulatory concepts for reusable and single-stage-to-orbit vehicles.

III. Launch License

The proposed changes to the launch licensing regulations address licensing requirements, including payload determinations and policy reviews, and information required from applicants

proposing to launch vehicles employing established technology and procedures from federal launch ranges. It is this segment of the industry with which the Office has the greatest experience and which has the most immediate need for greater specificity. The Office intends at this time to formalize its practice of issuing two different types of launch licenses, the launch operator license pursuant to which a licensee may perform any launches that fall within broad parameters as described in its license, and the launch-specific license, which allows a licensee to conduct only those launches enumerated in the license. The Office also intends to advise the industry of a proposed change in the Office's interpretation of the definition of "launch" and thus of the scope of a launch license.

A. Scope of Launch License and Definition of "Launch"

The Act requires a launch operator to obtain a license for the launch of a launch vehicle. Accordingly, the definition of "launch" reveals the scope of a launch license. Greater certainty regarding this definition will allow licensees to plan better regarding a number of issues. Because the Office's financial responsibility requirements and eligibility for payment by the United States of excess claims for liability for damages to third parties are coextensive with licensed activities, knowledge of the scope of a license allows a licensee to manage its risks appropriately and to make its own provisions for financial responsibility or insurance coverage in addition to that required under the statute.

The Office's licensing authority derives from the Act, which states that a license is required "to launch a launch vehicle." 49 U.S.C. 70104(a). The Act defines "launch" as "to place or try to place a launch vehicle and any payload—(A) in a suborbital trajectory; (B) in Earth orbit in outer space; or (C) otherwise in outer space." 49 U.S.C. 70102(3). The word "launch" is commonly understood to mean ignition, lift-off and flight of a launch vehicle, as well as, perhaps, certain immediately preliminary activities such as countdown and other final steps necessary to effectuate flight.

The Act does not provide for the licensing of all pre-launch activities. That the Act addresses pre-launch activities without mandating that they be licensed indicates that the statute did not contemplate licensing all pre-launch ground operations. For example, the Act discusses pre-launch activities in its definition of "launch services." See 49 U.S.C. 70102(5). "Launch services"

mean "(A) activities involved in the preparation of a launch vehicle and payload for launch; and (B) the conduct of a launch." *Id.* The Act does not require, however, a license to provide launch services. The Act treats as distinct activities the preparation of a launch vehicle for launch and the conduct of a launch, but provides for the licensing of only the latter of those activities. Likewise significant is that preparatory activities described in the Act's "launch services" definition do not also appear within the Act's definition of "launch."

The Office's current practice of licensing site operations associated with the conduct of a launch, commonly referred to as "gate to gate," is to license all commercial, launch related activities by a launch operator operating within the gates of a federal range. Under this view, a launch operator's operations are licensed, even if ignition and flight are not imminent and even if the launch vehicle itself is not present at the range.

"Gate to gate" evolved out of an industry desire for broad license coverage. Launch licensees requested some pre-flight coverage, and the question arose as to when that coverage began. The Commercial Space Transportation Advisory Committee (COMSTAC), which is composed of industry and public interest representatives, has historically advised the Secretary of Transportation that pre-flight activities should be eligible for indemnification because the risks could well exceed available private insurance. As is evident from testimony by the Director of the Office to Congress in March 1990, COMSTAC recommended as early as April 1989, that a licensee's insurance requirements cover third party claims from the time the licensee enters the federal range to conduct authorized launch activities. In September 1992, COMSTAC reaffirmed this view when it adopted the recommendation of its Risk Management Working Group regarding the scope of a launch license. The working group recommended that the Office's licensing authority "applies without limitation to all operations conducted by a commercial launch operator at a federal launch facility in connection with a licensed launch, commencing with entry onto the facility" and the COMSTAC adopted this recommendation. COMSTAC Risk Management Working Group Recommendation (adopted Sept. 19, 1992, Full Meeting Transcript 83). In 1992, the Office reached an accommodation with the Air Force that an Office license extended "gate to gate." At that time, the Air Force

questioned whether the Office had licensing authority "gate to gate." The Air Force agreed to accommodate the Office and industry by allowing the Office to evaluate a licensee's financial responsibility requirements gate to gate.

This approach has been the Office's official position with respect to the scope of its licenses. On March 6, 1990, in testimony to the Subcommittee on Space Science and Applications, Stephanie Lee-Miller, then Director of the Office, stated that the insurance requirements of an Office license covered claims from the time a licensee entered a federal range to perform authorized launch site operations.

Other government sectors, including NASA, have criticized this approach as overly broad. In 1995, House Science Committee Report No. 104-233, accompanying H.R. 2043, the NASA Authorization Act for Fiscal Year 1996, noted that members of Congress view with concern this approach to covering all license activities within the gates of a federal range, and considered it too broad.¹ Although recognizing that the report language does not carry the force and effect of law, the Office is concerned that launch operators might be pursuing their pre-launch activities in reliance on an indemnification that must be enacted by Congress and that may or may not be available from Congress. This prompted the Office to revisit the issue of the scope of a license and, thus, necessarily, of the definition of "launch." Accordingly, the Office hopes to reach a new and clear understanding of the meaning of "launch" and thus of the scope of a launch license through public discussion of these issues.

Specifically, the Office proposes to revise its current policy of licensing all commercial activities within the gate and to license only, as the Act mandates, the "launch of a launch vehicle." *Id.* The definition of "launch" must therefore be stated with specificity. The Office has taken into account the views expressed at its public meeting and in subsequent written comments favoring an expansive approach, and proposes to define "launch" as broadly as possible while still remaining within the confines of the Act.

At the public meeting, commenters' concern over the scope of a license was often grounded in the availability of indemnification. The then Martin Marietta advocated a very broad license

¹ In 1994, a House Space, Science and Technology Committee Report expressed the same sentiments. The report accompanied H.R. 4489, the NASA Authorization Act for Fiscal Year 1995, a bill that was not enacted into law.

to allow indemnification to attach. Tr. II at 26.² Orbital Sciences Corporation (OSC) requested that government indemnification be provided for preparatory activities as well as for flight. *Comments of OSC* at 5. Likewise, the 45th Space Wing of the Air Force favored extending the scope of a license to cover off-site payload processing in order for indemnification to apply. Tr. II at 43–44. The Air Force Space Command recommended that the Office license all commercial pre-launch processing activity occurring on federal ranges in order for the Office to impose its financial responsibility requirements. Tr. II at 36, *Comments of Air Force Space Command* at 2, 4. This recommendation stems from the Air Force's interest in minimizing any adverse impacts of a commercial launch accident on national assets. *Comments of Air Force Space Command* at 4.

Several commenters, including the 45th Space Wing of the Air Force, Orbital Sciences Corporation and the Western Commercial Space Center (WCSC)/California Spaceport Authority, suggested tying the license to hazardous activities rather than to geographical location or proximity in time to flight. Tr. II at 31, 43, 46, 53, *Comments of OSC* at 6, *Comments of WCSC, Inc.* at 2. USAIG, an insurance company, thought the point at which risks change the most appropriate means of definition. Tr. 53, 65. OSC advocated the inclusion of specific activities, such as integration, testing, fueling and mating of launch vehicles to carrier aircraft, in a license because the risks of fire or explosion are just as great for certain pre-ignition activities as they are subsequent to ignition. *Comments of OSC* at 6. OSC also advocated that air and ground launched vehicles be treated in an equivalent manner under the definition of "launch." *Comments of OSC* at 6. Although not defining "launch" in this fashion, OSC recommended that the Office license commence with the arrival of motors at the launch site for ground launched vehicles and aircraft roll forward on the runway for air-launched vehicles. *Comments of OSC* at 1.

Other public meeting participants urged the adoption of a more narrow definition of "launch" and thus of the scope of the license. For example,

Spaceport Florida Authority (Spaceport Florida), deeming overly inclusive the licensing of any activity on a federal range, suggested that "a launch activity is the final assembly of a launch vehicle with the intent to fly." Tr. II at 50. According to Spaceport Florida, the storage and maintenance of ordnance, while hazardous, is less dangerous than physical assembly of the launch vehicle. Tr. II at 50. Martin Marietta Commercial Launch Services, opined that each launch vehicle possesses a significant launch event that begins its launch process, and that for an Atlas rocket that event might be when the booster is placed on the stand. Tr. II at 62.

Alaska Aerospace Development Corporation (AADC) warned that even as industry received "indemnification" for a license with a broader scope, so would industry receive more regulation, which might, in the long run, prove more expensive than the benefits received from an expansive license coverage. Tr. II at 64, *AADC Comments* at 1. Likewise, Texas Rocket Company argued against licensing "small sounding type rockets" or any vehicle "which at its maximum calculated range will not cross the launch range perimeter," thus exhibiting a lack of interest in the benefits of indemnification. *Texas Rocket Company Comments* at 1. Goddard Space Flight Center and Wallops Flight Facility of NASA and California Spaceport Authority noted that if hazardous activities occur outside of a federal range, other regulatory regimes exist to ensure safety, and did not consider necessary a DOT license extending beyond the boundaries of a federal range. Tr. II at 47, 53.

In 1995, the House Science Committee also expressed an opinion on this issue, suggesting that "launch" could include "activities that precede flight that (i) are closely proximate in time to ignition or lift-off, (ii) entail critical steps preparatory to initiating flight, (iii) are unique to space launch, and (iv) are inherently so hazardous as to warrant the Department's regulatory oversight under Chapter 701." NASA Authorization Act, FY 1996, H.R. Rep. No. 233, 104th Cong., 1st Sess., at 60 (1995).

The Office considered three possible options in defining "launch" for purposes of developing proposed regulations. The Office considered adopting its current "gate to gate" definition but was concerned that "gate to gate" created a false impression that indemnification would be available for all commercial pre-launch activities taking place within the confines of a federal range. The Office also weighed

the most narrow approach, which would employ the ordinary definition of "launch" as only those flight activities beginning at "T minus 0 (T-0)," or intentional first stage ignition; but the Office concluded that this approach failed to provide regulatory oversight of hazardous activities and that policy reasons in the form of international competition weighed against this formulation. A less expansive approach than "gate to gate," one within the scope of the Office's mandate, would include within a license those activities that are part of a launch as contemplated by the Act's directive to license the "launch of a launch vehicle." Under the approach the Office proposes in this Notice, because risks change shortly after the launch vehicle or its hazardous components enter the gate of a federal launch range, launch would begin, for purposes of licensing, upon the arrival of that vehicle at the federal launch range. The following discussion describes each of these three options and summarizes their advantages and disadvantages.

1. "Gate to Gate"

Certain equities favor continuation of "gate to gate" as the definition of "launch." The "gate to gate" approach constitutes an attempt to treat different launch vehicles similarly. Whether a launch vehicle undergoes hazardous integration significantly in advance of flight, as the Delta and Pegasus do, or closer in time as an Atlas does, a license covers the same pre-launch activities: all launch related activities performed by a launch operator within the gates of a federal range. Additionally, "gate to gate" licensing ensures that the Office requires launch operators to demonstrate financial responsibility through the purchase of insurance coverage or other appropriate measures for possible damage arising out of commercial activities to government property. "Gate to gate" licensing also receives support because of the view that a launch operator would be indemnified for damage to third parties caused by pre-flight and post-flight ground operations.

The Office will not define "launch" to encompass all pre-flight activities by a launch operator on a federal range because not all activities are part of the launch of a launch vehicle. A launch operator may be present on the range, and engaged in preparatory activities, but not be working on a launch vehicle or its component parts in preparation for flight. A licensed launch operator may be present at a federal range between launches. The Office is aware of launch operators who perform

²References to "Tr." mean that the information cited is contained in the transcript for October 27, 1994, the first day of the Office's public meeting. References to "Tr. II" mean that the information cited is contained in the transcript for October 28, 1994, the second day of the Office's public meeting. The transcripts are available for public review and copying in Room PL 401, 7th Street SW, Washington, DC 20590.

construction activities within the gates of a federal range months or years prior to any anticipated flight of a launch vehicle. At that point, the launch operator may or may not be engaged in the type of hazardous activities warranting DOT oversight or indemnification because construction activity, however hazardous, is not part of the process of preparing the vehicle itself for flight.

In support of "gate to gate" licensing it has been suggested that pre-launch licensing authority arises out of the Act's directive to license "operation of a launch site." See 49 U.S.C. 70104(a). This argument does not, however, accord with the Office's interpretation of what it means to "operate a launch site." Now that the Office is preparing to license commercial operation of launch sites, it is necessary to differentiate between safety and control issues. The party in control of a site must be authorized by license to operate that site. In the case of a launch taking place from a federal range, the launch operator is not, in fact, operating a launch site. The site is operated by the federal range, under whose rules the launch operator operates and from which launch operators must obtain clearances and approvals. Range personnel perform services, make decisions regarding the activities of the launch operator and enforce the range's rules. Control over the site rests with the federal range rather than with the launch operator, and the launch operator does not operate the site.

In addition to exceeding the mandate of the statute, "gate to gate" also results in contradictory treatment of similarly situated persons. The situation of Astrotech Space Operations, L.P. (Astrotech), a payload processing facility, highlights this problem because Astrotech is located on a federal range, or "within the gate," at Vandenberg and "outside the gate" at Cape Canaveral. Astrotech's licensee customers at Vandenberg may well believe they would be indemnified were there an accident arising out of hazardous vehicle integration activities in light of the fact that current license coverage is so extensive. Yet Astrotech in Florida, which is not located on a federal range, is unable to offer its customers comparable benefits, even though it performs the same functions.

In sum, although there are benefits to "gate to gate" licensing, because "gate to gate" appears to encompass activities outside of the definition of "launch," the Office proposes that a launch license for launch of a launch vehicle will not commence when the launch operator enters a federal range.

2. "T Minus 0 (T-0)" or Intentional First Stage Ignition

The Office also considered defining "launch" as the word is ordinarily understood. This would limit the scope of a launch license to activities commencing at intentional first stage ignition. Were a launch license to cover only those activities, the launch industry would no longer be eligible for so-called indemnification for damages arising out of any preparatory activities. The regulatory burden, however, would be correspondingly less. A licensee would not, for instance, be required to obtain a license as early in the process as it must for gate to gate, nor would it be required to provide the Office as much information. Likewise, this approach would result in similar treatment of licensees regardless of the type of vehicle employed or the timing or location of hazardous activities. The Office carefully weighed this approach.

Statutory support for a narrow definition of "launch" and a correspondingly limited scope for a launch license is strong. As discussed previously, the Act does not provide for the licensing of all activities related to launch. The statute distinguishes between the conduct of a launch and preparation for a launch, characterizing the combination as "launch services," for which no license is intended. See 49 U.S.C. 70102(5). "Launch" may be defined using the ordinary meaning of the word. In fact, Arianespace provides an even later onset for the commencement of indemnification, defining the commencement of launch as the time at which cable clamps open and release the launch vehicle.³ This takes place after intentional ignition by several seconds. That launch starts at intentional ignition is supported by industry practice and by comments made at the Office's public meeting in October 1994.

Public meeting participants displayed consensus on the definition of "launch." The Space Transportation Association (STA), which includes a number of launch providers as members, recommended that the Office's regulation of launches be limited to the transport elements of a launch. Tr. 67, 108-09. STA observed that once a "transportation service has been completed, * * *, at that point the service has been terminated and it's up to the user to complete whatever it has to do," noting that in other transportation industries other agencies deal with the particularities of the cargo.

³ Arianespace indemnification for third party liability takes effect the day of the launch and continues for thirty-six months.

Tr. 108-09. According to STA, only if the payload itself were hazardous would there be a role for the Office. Tr. 109. McDonnell Douglas thought that not all on-site operations should be considered pre-launch. Tr. 115. McDonnell Douglas noted that OSHA already regulates much of the ground activity. Tr. 116. With respect to Orbital Science Corporation's Pegasus vehicle, NASA Wallops stated that the takeoff of an airplane does not constitute the beginning of a launch, and recommended that "launch" for such a vehicle commence when the rocket is released. Tr. 141-42. Orbital Sciences Corporation preferred a "wheels up" definition of launch not only "because of the indemnification that it provides but because 'wheels up' has been defined collectively as the stage zero of the mission." Tr. 144. In written comments, OSC, in the context of recommending that a license consist of two parts, suggested that launch begin at ignition or aircraft roll forward. *Comments of OSC* at 1. In short, there is not a great deal of variation regarding what "launch" is commonly understood to mean.

Despite this consensus, the Office proposes to define launch more broadly, and, as the commenters suggested in the context of license coverage, define "launch" in accordance with the point in time at which risks change. Weighing the burden to industry of more regulatory oversight against the benefits to it of indemnification and the benefit to the public of enhanced public safety, the Office proposes to define "launch" more expansively than the ordinary definition of the word would suggest. This would mean that the Office may license more than simply the ignition, lift-off and flight portions of a launch. "Launch" would commence when vehicle components enter the federal range. Were the Office to define "launch" only in terms of ignition and flight, it would ignore the fact that it is shortly after the arrival of the vehicle or its component parts that the risks to government property and to the public increase. With the arrival of the vehicle begin the inherently hazardous vehicle integration activities such as fuel tank testing, fueling, solid rocket motor handling and processing, and the installation of ordnance.

A strict construction of the Act would also ignore considerations of international competition. The Act charges the Office with encouraging, facilitating and promoting launches by the commercial launch industry of the United States. 49 U.S.C. 70103(b)(1). The U.S. launch industry competes internationally with European, Russian,

Ukrainian and Chinese launch vehicles. The European launch vehicle, Ariane, which is the market leader, provides indemnification to its payload customers commencing the day of launch and extending for thirty-six months on orbit thereafter. It is commonly understood that the French government would accept responsibility for the payment of damages that may be awarded for damage caused by Arianespace launches. For certain launches, the member states of the European Space Agency in turn indemnify the French government, and Arianespace is obligated to reimburse the French government for amounts up to 400 million French francs per launch for any damages the French government is required to pay. As the report of the Senate Committee on Commerce, Science and Transportation noted, foreign government support of national launch systems provides advantages to vehicles such as the European Ariane and the Russian Proton. See S. Rep. No. 593, 100th Cong., 2d Sess. (1988). Although the Act does not provide indemnification for on-orbit activities of customers of U.S. launch vehicles, greater coverage of preparatory activities would provide U.S. companies some measure of competitiveness with respect to their foreign competitors. In the interest of providing American launch companies competitive parity, the Office proposes to define "launch" more broadly than the common definition.

3. Vehicle at the Gate

The Office proposes to license as launch those preparatory activities that may be considered part of a launch. The Act defines "launch" to mean "to place or try to place a launch vehicle and any payload—(A) in a suborbital trajectory; (B) in Earth orbit in outer space; or (C) otherwise in outer space." 49 U.S.C. 70102(3). Although the Act differentiates between the conduct of a launch and launch services, and only directs the licensing of launches, the definition of "launch" itself speaks only of placing or trying to place a launch vehicle and any payload into an orbit or otherwise in outer space. This definition is silent as to when the act of launching or of "placing" commences. Because the statutory definition is as broad as it is, this lack of specificity requires the Office to determine, in the implementation of its rulemaking authority and on the basis of its experience and expertise, when "launch" begins.

The Office proposes to include within the definition of "launch" the flight of a launch vehicle, and those hazardous pre-flight activities that are closely

proximate in time to flight and are unique to space flight. There are certain pre-flight activities so integral to the launch of a launch vehicle that they should be considered part of the launch itself even though they do not constitute flight. Additionally, there are hazards associated with pre-flight activity that are proximate in time to flight and unique to space flight. The Office's regulatory charter encompasses more than flight.

In order to advance the interests of safety, the Office proposes to define the commencement of launch as the moment at which hazardous activities related to the assembly and ultimate flight of the launch vehicle begin, which, for purposes of consistency and clarity, the Office deems to be when the major components of a licensee's launch vehicle enter, for purposes of preparing for flight, the gate of a federal launch range from which flight will occur.

Defining "launch" as the arrival of the vehicle at the gate is in accord with the proposals of a number of commenters, who suggested that the Office define "launch" to begin when hazardous activities start. The Office is charged by statute with protecting the public, and a definition that recognizes hazards will address concerns regarding public health and safety. Only if an activity is so hazardous as to pose a threat to third parties should regulatory oversight by the Office be exercised, and "indemnification" to recompense third parties be available. Because shortly after vehicle components arrive, hazardous activities related to the assembly and ultimate flight of the launch vehicle begin, the arrival of the vehicle or its parts is a logical point at which the Office should ensure that a launch operator is exercising safe practices and is financially responsible for any damage it may cause. These hazardous activities include, but are not limited to, fuel tank wet testing, ordnance installation, spin balancing and the stacking of motors. They are hazardous because they expose third parties and government property to risk of damage or loss.

For purposes of ascertaining the start of launch, the Office reviewed the hazardous activities associated with the launch of a launch vehicle to determine when those hazardous activities started. It is the experience of the Office that commercial launch vehicles share a number of hazardous procedures, and that most of those procedures take place once the vehicle is at the launch site in order to minimize hazardous transport and exposure time.

The Office prepared a study in 1994, available in draft, titled "Prelaunch

Hazardous Operations for the Delta, Atlas, Titan at Cape Canaveral Air Station, Pegasus at Vandenberg Air Force Base, Conestoga at Wallops Flight Facility and Black Brant at White Sands Missile Range." Copies are available through the docket. The study analyzed similarities in the risk profiles for pre-flight processing of these vehicles, and compared the pre-flight processing timelines for the various vehicles. The results complement information available in the Office's "Hazard Analysis of Commercial Space Transportation," May 1988. The amount of damage that a vehicle may cause varies among vehicles, depending upon such factors as the mass of the vehicle, the number of stages, the presence and number of solid rocket motors, and the type and quantity of propellants. The launch vehicles studied and their pre-flight processing procedures are similar in that each has a similar hazardous potential.

The study showed that even though pre-flight processing procedures and the sequence of those procedures may vary among vehicles, the vehicles studied share such pre-flight processing procedures as solid rocket motor handling and processing, flight termination system or separation ordnance installation and checkout, and fueling. These activities occur at different times for different vehicles. The likelihood of a mishap⁴ resulting from these procedures is similar for each vehicle. These procedures constitute hazardous operations that have an identifiable or otherwise quantifiable probability of occurrence (P_o) of a mishap. The probabilities that these operations will result in a mishap are approximately $P_o=10^{-4}$ to 10^{-5} for solid rocket motor handling and processing; $P_o=10^{-5}$ for flight termination system or separation ordnance installation and checkout, and $P_o=10^{-3}$ to 10^{-6} for fueling. "Eastern Launch Site Safety Programs," Louis J. Ullian (Commercial Space Risk and Insurance Symposium, Cocoa Beach, Florida, Oct. 26, 1988). These probabilities are relied upon by launch companies, federal agencies and federal ranges for their analyses of hazardous operations.

The operations are considered hazardous because their processes may lead to identifiable mishaps and dangerous consequences. Solid rocket motor handling and processing may result in ignition of the propellant,

⁴ The term "mishap" encompasses unplanned events resulting in injury, occupational illness, or damage to or loss of equipment or property, or damage to the environment.

either explosively or otherwise. This may be caused by the unconstrained burning of a major portion of the propellant if a situation were to develop that did not allow the proper venting of the burning propellant. Casualties and property damage may result if an installed igniter initiates and causes an engine or solid rocket motor to become fully propulsive, as during flight. Casualties or damage may result from fire, explosion or toxic fumes that may be a by-product of combustion. These events may result in direct damage or casualties as the consequence of blast and debris effects. These events may also lead to secondary effects such as fires or explosions that may be caused by the direct blast and debris effects.

Flight termination system or separation ordnance installation and checkout may result in lethal or damaging releases of energy. The inadvertent ignition of installed or uninstalled ordnance, including that of the flight termination system and explosive bolts installed on various separation systems could result in explosion and debris.

Fueling may result in a range of consequences, including fires, either pool fires or fireballs, or the release of vapor clouds, which may be toxic or which may ignite. These events may occur because of leakage during fueling or spills during an accident. If such a mishap involves toxic propellants, toxic components of the fuels may be released into the atmosphere or spilled on the ground. If a vehicle releases its hazardous materials into the atmosphere, it could expose people at a launch site or in the public at large to those hazards.

These findings are based on the Office's 1994 review of launch vehicle manufacturers' data, commercial launch baseline assessments, past maximum probable loss determination analyses and Ullian's 1988 presentation at the Commercial Space Risk and Insurance Symposium. As a general rule, hazardous operations begin as soon as, or shortly after, a launch vehicle's major systems arrive at a government launch facility.

The Office will continue to employ a geographic element by using entry of the launch vehicle onto a federal range as part of its definition of "launch." This ensures consistency and clarity of interpretation. Consistency is guaranteed by the fact that regardless of vehicle type, each vehicle will receive the same regulatory coverage. Although some commenters maintain that launch begins at different points for different vehicles, because the Office wishes to treat launch operators in an equivalent

fashion, the Office will not define "launch" on the basis of the launch vehicle. Moreover, reliance on a geographic element provides clarity of interpretation even for a launch operator of a new vehicle using different technology. An applicant seeking a license for a new vehicle will know to plan for license coverage at the time its vehicle enters a federal range.

Additionally, the Office considers it inappropriate to license pre-flight activities located outside of the federal range. Before the vehicle components are brought together at a federal range for integration or assembly in anticipation of flight, flight is not imminent and the separate components are thus not part of the process which Congress intended to protect through the risk management scheme of the Act. Additionally, it has not been shown that insurance is unavailable for manufacturing activities. Indeed, that commercial operations exist off-range to manufacture and process vehicle components and payloads indicates to the Office that the hazards are not so extreme as to stifle the development of facilities and services off a federal range.

There are pre-flight activities that are unique to space flight and that may be considered part of launch, as the term is commonly understood. Countdown, for example, occurs prior to ignition and flight, yet may be considered part of a launch. Many of the activities that take place once major systems of a launch vehicle arrive at a federal range are unique to space flight as well. These include vehicle integration and testing, fueling and the other activities discussed earlier as hazardous.

Another aspect of the Office's definition attempts to capture those activities that are proximate in time to flight. If activities are close in time to flight they are more likely to constitute necessary or integral elements of the launch. For example, fueling for liquid-fueled vehicles usually takes place not long before flight to minimize the risks attendant to the exposure of a fueled vehicle, and the Office would consider that activity to be a component of launch under the Act. On the other hand, the Office does not intend to license components stored at a federal range for a considerable period of time prior to flight. The Office is aware that the definition of launch may be construed to encompass motor storage as well. However, if motors arrive at a federal range for purposes of storage rather than as part of a launch campaign, the Office does not consider that storage part of a launch. The Office is interested in views regarding the ramifications of this approach to motor

storage and with respect to any other activity which might arguably not constitute part of a pending launch campaign.

Although initially producing licenses of considerable duration, the Office believes that its proposed "vehicle at the gate" definition of launch may, over time, result in licenses of shorter duration. As industry practices evolve, a vehicle's arrival at the range will be more closely proximate to the time of flight. Comments at the public meeting described industry's evolution toward "just in time" processing. A representative of the 45th Space Wing of the Air Force noted that launch operators are attempting to bring vehicle components to the range in final form with only some assembly required. Tr. II at 33. Therefore, the arrival of vehicle components may eventually occur closer in time to ignition, lift-off and flight.

Of interest to the Office are the answers to a number of related questions. For example, is it likely that the proposed definition of "launch" might result in changed activity on the part of licensees? Would a licensee wait until its vehicle arrives to perform unrelated hazardous activities? If so, what are those activities?

4. When Does Launch End?

The current practice of the Office is to define the end of a launch as the point after payload separation when the last action over which the licensee has direct or indirect control over the launch vehicle occurs. For a liquid-fueled stage, that point may be when any remaining fuel is emptied from the upper stage, and the vehicle tank is vented and otherwise "safed." For solid rocket motors, that point may be when the upper stage is dead or inert and the payload is released.

Others apply different definitions to the end of launch. The 1994 House Committee Report suggests that launch ends when the payload is placed into orbit or in its planned trajectory in outer space. The 45th Space Wing considers a launch complete when all hazardous activities are secured and, for purposes of flight safety, upon orbital insertion. Tr. II at 66. Orbital insertion takes place when a launch vehicle achieves orbital velocity, or when its instantaneous impact point leaves the earth. McDonnell Douglas pointed out that there are a number of post-flight ground operations which would apply to reusable launch vehicles, such as draining propellants, pressuring down gas systems, securing all systems and refurbishing the launch pad. Tr. 90.

The Office believes that defining launch to end at orbital insertion terminates oversight of a launch too soon for safety. Damage to other orbiting material may still ensue as the result of activities subsequent to orbital insertion. Risk exists of the possible collision of a launch vehicle or its components with other objects in space. The orbit of a launch vehicle may decay, and its possible reentry would endanger public health and safety and the safety of property on earth. Additionally, dangerous orbital debris might be generated.

The Office proposes to retain its current practice of defining the cessation of launch. From a practical point of view, the Office believes that this definition keeps pace with technology. As the one with control over the launch vehicle, the licensee is in the best position to minimize the probability that the vehicle will cause harm. If improvements in technology increase a licensee's ability to control its vehicle, then the Office will expect the licensee to do so in a safe manner.

With respect to ground operations, the Office's current practice is to consider post-flight ground operations part of a launch license and thus as part of launch. The Office does not propose to continue to regard post-flight ground operations for expendable launch vehicles as part of "launch." The Office considered several options as to when ground operations were no longer considered part of a launch. Under the first option, ground operations would not be considered part of launch once the launch vehicle left the ground. Reentry activities aside, it has not been the Office's experience that post-flight activities involve the same levels of risk as pre-flight activities, where the handling, integration and fueling of the vehicle pose substantial hazards. Alternatively, ground operations for launch could end when launch ends in the context of flight, namely, when the last act over which the licensee has control occurs. This alternative would allow for at least part of the post-flight ground operations to be covered by the license. The end of launch for purposes of flight is not, however, related to activities on the ground. The Office is concerned that attempting to create such a connection would be arbitrary and might inappropriately influence a licensee's post-flight ground operation procedures. The third option considered by the Office was to define the end of ground operations for launch as that point at which all personnel may resume operations at the launch pad and related environs. This approach recognizes that hazardous operations do

occur subsequent to ignition and lift off. These operations include securing ground propellant and pneumatic systems and verifying through inspection of the pad that no post-flight hazards exist. The operations cease upon a determination that the launch pad and other launch related facilities no longer endanger personnel.

Because the hazards associated with ground operations subsequent to lift off are not related to the preparation of the vehicle for flight, the Office proposes to define the end of launch for purposes of ground operations as the point at which the launch vehicle leaves the ground. This analysis applies to expendable launch vehicles. For the time being, judgment is reserved with respect to reusable launch vehicles.

B. Formalizing Launch and Launch Operator Licenses

In order to enable the Office to issue a license for a single mission or for multiple missions, the proposed licensing structure provides for two types of launch licenses, the launch-specific and the launch operator license.

A launch specific license authorizes the licensee to conduct a single launch, or a specified number of identical launches, from a single launch site. The launch vehicle for each authorized launch must be the same and launch parameters must present no unique public safety issues or other issues affecting U.S. national interests. The licensee's authorization to conduct launches would terminate upon completion of all launches authorized by the license or the expiration date set forth in the license, whichever came first.

A launch operator license authorizes the licensee to conduct launches from a specified launch site, using the same family of launch vehicles, carrying specified classes of payloads, within the range of launch parameters defined by the license. A launch operator license would authorize the conduct of launches for five years from the date of issuance.

The option of issuing a launch operator license provides advantages both to the licensee and to the Office. Although the application preparation for and review of a launch operator license will be more extensive than for a launch specific license, use of this class of license will ultimately result in cost reductions and efficiency gains for licensees by reducing the number of applications that a company with an active launch schedule must submit, and that the Office must review. The Office's proposal to increase the term of a launch operator license from the

current practice of two years to five years reflects the Office's experience with its licensees during the past few years.

During that time, the Office has encountered no serious safety problems with launch operator licensees. On the basis of this record, the Office believes that a launch operator with a safe launch record should not be required to apply for a new license every two years. The Office will continue to verify, through compliance monitoring, that a licensee is operating in accordance with the terms and conditions of its license. In this regard, the longer the license term, the more important compliance monitoring is to enable the Office to remain informed regarding how a licensee implements its procedures.

C. Relationship Between DOT and Federal Government Launch Ranges

The Office's proposed launch rules are limited to launches as they currently take place from Department of Defense (DOD) or NASA launch ranges. The Office intends to be receptive to the commenters' express desire to avoid duplication between the Office and the federal launch ranges in overseeing the safety of launches. The participants in the public meeting strongly supported avoidance of duplication of effort. The proposed rule is consistent with that desire. Although the Office proposes to require information and analyses not required by federal ranges to ensure that all flight safety issues are addressed, and to impose certain additional requirements derived from a National Transportation Safety Board investigation, the Office will not duplicate the safety assessments performed by federal launch ranges.

Federal launch ranges manage the launch facilities from which commercial launches now take place. The federal ranges act, in effect, both as landlords and as providers of launch facilities and services. The ranges require compliance with their safety rules as a condition of using their facilities and services. Because different federal ranges confront different safety issues, practices are not always standardized, although recent Air Force efforts resulted in a joint set of documentation requirements and procedures, Eastern and Western Range Requirements 127-1 (Mar. 1995). In addition to protecting public safety, the federal launch range procedures protect government property and launch capability, and are designed, to some extent, to ensure mission success.

Public meeting participants requested that the Office not duplicate federal range oversight. The Air Force itself

advised against a "redundant set of requirements on commercial space activities on Federal ranges," and recommended that the Office "accept the approval of the responsible government agency at the launch site to satisfy all OCSST safety approval requirements," with the exception of any information required to perform a financial responsibility analysis.

Comments of Air Force Space Command at 1, 4. Orbital Sciences Corporation noted that "National Range safety requirements have been developed over 30 years and OCSST should feel comfortable adopting them as the core set of safety requirements needed to protect the public safety." *Comments of OSC* at 2. Others suggested that "[l]aunch licensing should continue the general approach of requiring the minimal information needed to fulfill the mandates of the Act with regard to public safety, defense and international treaty, and environmental concerns."

Weaver Aerospace Comments at 4.

The Office fully recognizes the comprehensive and responsible safety oversight that DOD and NASA have exercised at their ranges for over thirty years. The Office also recognizes the scope of information that a launch operator employing federal range services must submit for approval in order to conduct launch operations. Therefore, for launches that take place from DOD or NASA launch ranges, the Office has designed its proposed regulatory program to make maximum use of information provided by an applicant to the federal launch range and of federal launch range analyses and approvals. This means that the Office would rely on the processes of the federal range and would not duplicate those safety analyses conducted by a federal range.

Federal launch ranges require a launch operator to provide data regarding its proposed launch. The range evaluates the data to ascertain whether the launch operator will comply with range requirements. The range also uses the data to prepare range support for the mission. DOD ranges require that a launch operator apply for and obtain specific mandatory approvals from the range in order to conduct certain specified operations. For example, the Air Force's Eastern and Western Range Requirements 127-1 require a launch operator to obtain approvals for hazardous and safety critical procedures before the range will allow those operations to proceed. In the event that a launch operator's proposal does not fully comply with range requirements, a range may issue a deviation or a waiver if the mission

objectives of the launch operator could not otherwise be achieved. A range may issue a deviation to allow a launch even when a launch operator's designs or proposed operations do not comply with range requirements. A range may issue a waiver when it is discovered after production that hardware does not satisfy range requirements or when it is discovered that operations do not meet range requirements after operations have begun at a federal range. A range will allow a deviation or grant a waiver only under unique and compelling circumstances.

The Office performed baseline assessments of various federal launch ranges and found their safety services adequate. The Office will not require an applicant to demonstrate the adequacy of the range services it proposes to employ if the applicable baseline assessment included those services and if those services remain adequate. Certain showings regarding the applicant's own capabilities are still required. The Office proposes to require specific information regarding the interface between the safety organizations of a federal launch range and of an applicant. In the event that a service or procedure upon which an applicant proposes to rely is not within the documented experience of the federal launch range that the applicant proposes to utilize, the applicant would have to demonstrate the safety of that particular aspect of its launch. This is also true if a documented range safety service has changed significantly or has experienced a recent failure. In those cases, the burden of demonstrating safety shifts to the applicant.

The proposed rules also codify Office guidelines containing National Transportation Safety Board recommendations concerning launch readiness and countdown procedures. The Office's guidelines implement National Transportation Safety Board recommendations made following an investigation of a commercial launch anomaly occurring during a launch from a federal launch range. These guidelines are designed to ensure that a launch licensee has clear lines of authority and communication during launch, and has specific procedures governing other safety aspects of its launch operations.

IV. Section-by-Section Analysis

A. Part 401—Organization and Definitions

Section 401.5 contains definitions of significant terms used in the Office's regulations. Proposed amendments include both changes to existing definitions and the addition of new

terms. Certain changes are intended only to reflect changes resulting from the 1994 codification of the Act. Others are editorial.

Deletions

The Office proposes to remove the terms "Director," "launch activity," "mission," and "safety operations."

"Director" no longer constitutes a title within the Office of the Associate Administrator for Commercial Space Transportation and is therefore deleted.

"Launch activity" refers to activities licensed by the Office. The term is overly broad and unnecessary.

"Mission" is no longer necessary because the Office proposes to modify and rename the mission review contained in part 415, subpart C.

"Safety operations" does not appear in the proposed regulations and the Office therefore proposes to remove it.

Revisions

Some of the proposed revisions merely reflect the codification of the Act. These include "Act," "launch site," "launch vehicle," "payload," and "person."

The Office proposes to revise the term "launch," not only to reflect the codification of Pub. L. 98-575, but to clarify that launch, for purposes of licensing, includes the flight of a launch vehicle and those hazardous pre-flight activities that are closely proximate in time to flight and are unique to space flight. For launches from federal launch ranges, hazardous activities begin with the arrival of the launch vehicle at a federal launch range for purposes of preparation for flight. The term "launch" is addressed in greater detail earlier in this Notice.

The definition of "launch site" reflects changes resulting from the codification of the Act, but additional clarification is in order. The definition of "launch site" in the original Commercial Space Launch Act includes "facilities located on a launch site which are necessary to conduct a launch." 49 U.S.C. App. 2603(5) (emphasis added). The codified definition of "launch site" merely includes "necessary facilities" with no mention of their location. 49 U.S.C. 70102(6). According to a House Report explaining the codification, the statute omitted as surplus the words "includes all * * * located on a launch site which are * * * to conduct a launch."

Revision of Title 49, United States Code, "Transportation," H.R. Rep. No. 180, 103rd Cong., 1st Sess., at 463 (Jul. 15, 1994). Although no substantive changes were intended by the codification (see *id.* at 5), omission of "located on a

launch site" from the law may create the impression that facilities may be located anywhere and still require a license under the statute. This is not the case. The Office does not believe that Congress intended to change the substance of the statute to provide for the licensing of all necessary facilities regardless of their location.

Additions

New terms include "Associate Administrator," "federal launch range," "hazardous materials," "launch accident," "launch incident," "launch operator," "mishap," "Office," and "regulations."

"Associate Administrator" reflects a change in title of the person in charge of the Office and arises out of the transfer of the Office from the Office of the Secretary to the Federal Aviation Administration. The term describes the FAA's Associate Administrator for Commercial Space Transportation.

"Federal launch range" means an installation from which launches take place that is owned and operated by the government of the United States. Federal launch ranges include Cape Canaveral Air Station, Vandenberg Air Force Base, White Sands Missile Range and Wallops Flight Facility.

"Hazardous materials" means hazardous materials as defined in 49 C.F.R. 172.101.

"Launch accident," "launch incident," and "mishap" all address related issues. The term "mishap" is a general term for all unplanned events at a launch site or a launch resulting in injury, occupational illness, or damage to or loss of equipment or property. Mishaps include but are not limited to launch accidents and launch incidents. Launch accidents and launch incidents are included in the term "mishap." "Launch accident" and "launch incident" derive from the Office's current definition of "accident" and "incident" as the terms appear in the Office's accident investigation plan. Both terms encompass unplanned events occurring during flight. "Launch accident" is defined by the seriousness of the results, and "launch incident" focusses on the failure of a safety system or process that may or may not have caused serious harm. Special reporting and investigation requirements attach if a launch accident or incident occurs. "Accident" is also defined in a Memorandum of Understanding with the National Transportation Safety Board (NTSB). A launch accident requires NTSB involvement. A "launch incident" may or may not require NTSB involvement, depending on the seriousness of the safety issues

involved. Other mishaps, such as a mission failure, have fewer reporting and investigation requirements.

"Launch operator" is defined as a person who launches or plans to launch a launch vehicle and any payload. The term is required in order to distinguish a launch operator from a "site operator," a term that the Office intends to define in a future rulemaking concerning the operation of a launch site.

"Office" means the office of the Associate Administrator for Commercial Space Transportation of the Federal Aviation Administration, U.S. Department of Transportation.

"Regulations" means regulations adopted by the Office pursuant to the Act, and describes those regulations contained in 14 CFR Chapter III.

B. Part 411—Policy

The Office proposes to delete as unnecessary and to reserve part 411, which establishes the policies of the Office for licensing commercial launch activities. This part identifies two reviews, safety and mission reviews, which, pursuant to the proposed rules, would be addressed in parts 413, 415 and 417.

C. Part 413—License Application Procedures

Proposed part 413 continues to describe those license application procedures applicable to all license applications. The procedures apply to license applications to launch a launch vehicle or to operate a launch site. More specific requirements applicable to obtaining a launch license or site operator license are set forth in parts 415 and 417, respectively. The majority of the revisions to this part are editorial or self-explanatory. A few revisions bear individual mention.

Proposed § 413.3 identifies who must obtain a license to launch a launch vehicle or to operate a launch site. Any person proposing to launch a launch vehicle or to operate a launch site within the United States must obtain a license authorizing the launch or the operation of the launch site. A U.S. citizen or entity proposing to launch outside the United States or to operate a launch site outside of the United States must obtain a license authorizing the launch or the operation of the launch site. A foreign corporation, partnership, joint venture, association or other foreign entity controlled by a U.S. citizen and proposing to launch from, or to operate a launch site within, international territory or waters must obtain a license if the United States does not have an agreement with a foreign nation providing that the foreign nation

shall exercise jurisdiction. A foreign corporation, partnership, joint venture, association or other foreign entity controlled by a U.S. citizen does not require a license to launch from foreign territory, unless that foreign nation has agreed that the U.S. shall exercise jurisdiction over the launch.

Proposed § 413.5 requires a prospective applicant to consult with the Office prior to submitting an application. This pre-application consultation would become mandatory in order to allow both the applicant and the Office the opportunity to identify potential issues relevant to the Office's licensing determination. Consultations may be made by telephone.

Proposed § 413.7 contains a change in the name of the Office. Effective November 15, 1995, the Office became a part of the Federal Aviation Administration, where it now operates as the FAA's seventh line of business. With that move, the Office name was changed from the Office of Commercial Space Transportation to the Office of the Associate Administrator for Commercial Space Transportation. Proposed § 413.5(a) reflects that change.

Proposed § 413.7(b)(2) requires an applicant to provide the Office with one or more points of contact who should receive notices from the Office.

Proposed § 413.9 describes how an applicant may request confidential treatment for trade secrets or proprietary commercial or financial data.

Proposed § 413.11 describes the process by which applications are accepted or rejected. Proposed § 413.11(a) provides for an initial screening of an application in order for the Office to determine whether the application is sufficiently complete to allow the Office to initiate the required reviews. The Act requires the Office to complete its review of an application within 180 days. The Office determines when an application is sufficiently complete for the 180 days review period to commence and how those 180 days will be measured. If the Office receives an application which fails to provide sufficient information for the Office to conduct a meaningful review, then a review cannot be performed. Accordingly, the 180-day review period will start to run only upon receipt of an acceptable application. The Office considered the option of not commencing any review of an application and thus of not starting to count the 180-day statutory time limit until the application was complete to ensure that the Office did not receive piecemeal applications. The Office also considered rejecting or denying an incomplete application, which would

also prevent the 180-day review period from commencing. The Office determined that if an applicant presented sufficient material to allow at least some meaningful review to commence, the Office would do so in the interests of the applicant. Commencing the review of even an incomplete application should allow for earlier identification of required information not addressed, hasten the process and increase efficiency. In order for the Office to review an application, the application must be sufficiently complete to allow review to commence. Although review of an incomplete application may commence, proposed § 413.13 requires an applicant to complete an incomplete application.

Proposed § 413.15 tolls the review period of 180 days when an applicant fails to provide information required for the Office to complete its review. If an application does not address requests for required information in sufficient detail, or if the application contains inconsistencies, the Office may advise the applicant and provide a time by which the requested information must be provided. Once the deadline has passed, and while the Office waits for any information necessary to complete its review, the 180-day time limit on the Office does not run. The Office considered the option of returning the application for resubmission if the requested information were not submitted within the time provided. Because of the new submission of the application, a new 180-day review period would commence. This course would provide the applicant a strong incentive to respond to the Office's information request in a timely fashion, and, perhaps, result in the processing of only those applications where the applicant possesses the actual capacity to respond. This would accordingly discourage frivolous applications. The Office determined that most applicants, provided with information regarding how soon the Office would require information necessary to complete a review, would respond in the time allotted. Thus, so extreme an incentive would not be required. However, it has been the Office's experience that applicants do not always respond in a timely fashion to requests from the Office for clarification or additional information. Accordingly, some incentive to respond promptly is necessary, and in the event an applicant fails to respond within the time provided, the Office proposes to toll the 180-day statutory review period.

Proposed § 413.17 describes an applicant's responsibility for the continuing accuracy and completeness

of the information contained in the applicant's license application. The applicant must advise the Office of any proposed material change in any representation contained in its application, including its launch plans or operations, launch procedures, classes of payloads, orbital destinations, safety requirements, the type of launch vehicle, flight path, and range, or any safety related system, policy, procedure, requirement, criteria or standard, related to commercial space launch or launch site operation activities, that may affect public health and safety, the safety of property, including government property, or hazards to the environment. Because the Office proposes to rely upon federal ranges for safety considerations, as discussed in other parts of this Notice, the applicant must also notify the Office in the event the applicant applies to the federal range for a waiver to, or deviates from the federal range's safety requirements or procedures.

This section also, while permitting an applicant to modify or supplement its license application, notes that changes to an application may lengthen the time that the Office requires to complete its reviews. The Office will reserve to itself the right to toll the 180-day review period in the event that modifications to an application so radically change the applicant's proposal that the change, in effect, constitutes a new application. The Office's experience, however, has been that most modifications, while important, have a relatively minor impact on the processing time, particularly if those modifications are submitted in a timely manner.

Proposed § 413.19 addresses issuance of a license.

Proposed § 413.21 contains the procedures employed by the Office when it denies an applicant a license, and describes the recourse available to that applicant. The applicant may attempt to correct the deficiencies which resulted in the denial of its application and request reconsideration of its application, or it may request a hearing to show why the application should not be denied.

Proposed § 413.23 allows a licensee to apply for renewal of an expiring license. A licensee seeking authorization to conduct activities that are substantially or significantly different from those authorized under the expiring license is not eligible for renewal of the license and must apply for a new license.

D. Part 415—Launch License

Proposed part 415 establishes requirements applicable to obtaining a license to launch a launch vehicle and

establishes post-licensing requirements. The provisions of this part apply to prospective and licensed launch operators and, possibly, to prospective payload owners and operators, and should be read in conjunction with the general application requirements of part 413. A flow chart of the launch license application process is provided in Figure 1.

Proposed subpart A describes the scope and types of launch licenses, required approvals or determinations and procedures governing issuance or transfer of a launch license. Proposed § 415.1 explains that part 415 prescribes requirements for obtaining a launch license and prescribes post-licensing requirements. Proposed § 415.3 addresses the types of launch licenses issued, as discussed previously in this Notice.

Proposed §§ 415.5 and 415.7 identify the approvals and determinations required to qualify for a launch license. These sections would require a license applicant to obtain policy and safety approvals from the Office. The applicant would also be required to obtain a payload determination unless the payload were otherwise exempt from Office consideration. The owner or operator of the proposed payload may also apply for a payload determination. In addition to these approvals or determinations that the Office requires of an applicant for a launch license, an applicant should bear in mind that the National Environmental Policy Act (NEPA) requires the Office, prior to considering a license application, to perform environmental reviews of major federal actions such as issuing a launch license. Accordingly, if a proposed launch vehicle is not otherwise already encompassed by the Office's 1986 Programmatic Environmental Assessment of Commercial Expendable Launch Vehicle Programs, then NEPA may direct the Office to perform the requisite environmental review. No other approvals or determinations are required from the Office in order for an applicant to obtain a license for launch of a launch vehicle.

This subpart also contains provisions for issuance and transfer of a launch license. Once an applicant has obtained all required approvals, the Office will issue a launch license under proposed § 415.9. Proposed § 415.11 allows the Office to amend a launch license at any time by modifying or adding terms and conditions to the license to ensure compliance with the Act and regulations. Although standard license terms and conditions, as proposed in subpart E, apply to all licensees, it is the experience of the Office that a particular

launch proposal or a particular licensee may present unique circumstances which apply only to that licensee. In that event, the Office may issue or amend a license with terms and conditions not identified in subpart E to protect public health and safety, safety of property, U.S. national security and foreign policy interests, or international obligations of the United States. Should a licensee wish to protest an Office modification of its license, it is entitled to a hearing pursuant to § 406.1(a)(3) of part 406. In the event safety requires that additional terms and conditions be applied to all licensees, the Office would revise subpart E by rulemaking to implement any such standardized terms. A licensee may also initiate license modification. As provided in part 413, a licensee may request modification of its license to reflect changes in its proposed launches.

Under proposed § 415.13 only the Office may issue or transfer a license, and only upon application by the transferee. The prospective transferee must satisfy all requirements for obtaining a license as specified in parts 413 and 415.

Subpart B describes the proposed requirements for a policy review. The proposed policy review is currently known as a mission review under 14 CFR part 411. Because the Office proposes to separate a payload determination from any mission review, it proposes to change the name of the review to policy review to more accurately identify its purpose. Under proposed §§ 415.21 and 415.23, a policy review would address whether some aspect of a proposed launch presented an issue affecting U.S. national security or foreign policy interests or is inconsistent with international obligations of the United States. Launch safety issues would be addressed only in the safety review although the Office proposes to address payload safety issues in the course of a payload determination. Only a launch license applicant may request a policy approval. An applicant must provide the information required by subpart B so that the Office may review those aspects of an applicant's launch proposal that are not related to safety. The Office coordinates this review with other government agencies, including the Departments of Defense, State, and Commerce, the National Aeronautics and Space Administration and the Federal Communications Commission. An applicant may choose to submit an application for policy review separately from its license application, or, as do most applicants, it may submit a complete license application. The Office

proposes to allow separate submission of a request for a policy review because of the possibility that an applicant might be uncertain about policy issues surrounding its proposal, and might wish to allay concerns over reactions to its proposed launch. An applicant might then request only a policy review prior to undertaking the additional effort necessary to prepare a complete license application. Past experience indicates that the Office accomplishes mission reviews relatively quickly in comparison with a safety review.

Proposed § 415.25 describes the information an applicant would be required to provide to obtain a policy approval. The information requested reflects current Office information requests. The Office requires this information in order to inform itself and other agencies as to what is being launched, by whom, for what purpose, and where a vehicle and its payload are going. The State Department, for example, may be interested in overflight issues regarding particular countries. Accordingly, the Office proposes to require that an applicant supply it with sufficient information to describe a proposed launch vehicle and its mission.

The information requested by proposed § 415.25(b) is required in the event there are any policy issues surrounding the launch vehicle itself. The Office requires a brief description of the launch vehicle, including the propellants used and the vehicle's major systems, such as its structural, pneumatic, propulsion, electrical or avionics systems. For example, policy questions may arise over the use of nuclear power. The Department of Defense may have concerns over the allocation of resources to a commercial launch if a sole source manufacturer is involved. The Office is interested in views regarding whether this level of detail is overly burdensome.

The information requested by proposed § 415.25(c)(2) is intended to provide the Departments of State and Defense the identities of any foreign interests involved in a licensed launch. These agencies express interest in foreign involvement in the U.S. launch industry. Also, there may be issues with respect to whether possible government payment of excess third-party claims is available to foreign launch participants. The Office proposes to request the identity of any foreign owners possessing a ten percent or greater interest in a license applicant. The Office believes that a ten percent ownership interest is sufficiently high for a foreign owner to be able to influence a prospective licensee. The

Office is aware that a publicly traded corporation will not always know the identity of each of its smaller shareholders. However, such an applicant should be aware of any shareholders possessing that significant an interest in the corporation. Reporting requirements of the Securities and Exchange Commission and the Department of Defense are often triggered by an ownership interest of ten percent or more and the Office believes that this constitutes a reasonable threshold. The Office is interested in comments addressing whether a ten percent threshold provides sufficient information concerning the ability of foreign interests to influence licensee decisions.

Proposed § 415.25(d)(3) requires information regarding the sequence of major launch events during flight. In this regard, the Office expects to be informed of events such as approximate engine burn times of all stages, stage separation events, yaw maneuvers and engine cutoff. The applicant may provide this information through a text explanation or through diagrams and charts.

Proposed § 415.25(d)(4) requests a description of the range of nominal impact areas for all spent motors and other discarded mission hardware. The area identified for each impacting component shall include that area within three standard deviations of the nominal impact point, a calculation otherwise known as a 3-sigma footprint.

Proposed section 415.27 contains procedures employed by the Office when it denies an applicant a policy approval and describes the recourse available to that applicant. If an applicant fails to obtain a policy approval, the applicant may attempt to correct the deficiencies which resulted in the denial and request reconsideration of the denial, or, upon denial of a license, it may request a hearing.

Proposed subpart C addresses the Office's safety evaluation process for license applications for launches from a federal launch range. Because of the history and safety record of the federal launch ranges, and because the Office's baseline assessments provide a written record of the federal launch range's experience relevant to commercial space transportation, the Office accepts that a federal launch range will perform its safety role. Accordingly, the Office's information requirements are directed more toward an applicant's own safety capabilities. The Office requires information regarding the applicant's safety organization, vehicle design and operational safety practices. In this

subpart the Office proposes standards regarding acceptable flight risk and requires an applicant to submit procedures and plans that demonstrate that it will satisfy certain other safety requirements if it obtains a license.

The Office recognizes that federal launch ranges provide a number of safety services for launch operators, and that these sites have an historically good record of safety. Proposed § 415.31 explains that the Office will issue a license to an applicant proposing to launch from a federal launch range if the applicant satisfies the requirements of subpart C and has contracted with the federal launch range for the provision of launch services and property, as long as the launch services and proposed use of property are within the experience of the federal launch range. All other safety services and property associated with an applicant's proposal are evaluated on an individual, case by case basis.

The Office has assessed the four federal launch ranges which provide launch services and facilities. The federal ranges assessed include Cape Canaveral Air Station, Vandenberg Air Force Base, Wallops Flight Facility and White Sands Missile Range. The Office does not duplicate federal launch range analyses nor routinely review those analyses during the launch safety review conducted by the Office. Instead, the Office relies on its knowledge of the range processes as documented in the Office's baseline assessments. The Office's assessments provide a basis for the Office's reliance on the adequacy of the services provided by each of the federal launch ranges. Some safety issues, however, may not be adequately addressed by a federal launch range. The failure of federal launch range safety systems or procedures may, for example, affect the Office's ability to rely on a federal launch range. The Office may ascertain this during the course of a pre-application consultation or once an applicant submits its application. The Office may then require the applicant to demonstrate safety with respect to those specific areas of concern on an individual or case by case basis. In addition to requiring a showing of safety from the applicant, the Office will also work with the federal launch range to address the issue, and will update the Office's baseline assessment as appropriate.

The Office also makes maximum use of the information an applicant must provide a federal launch range. The applicant, to save paperwork, may submit to the Office either entire, or appropriate sections of, documents it prepares and submits to the federal

launch range that are relevant to the applicant's launch application. It has been the Office's experience that because information requested by federal launch ranges provides greater detail than the Office requires, the Office's requirements may be satisfied by this material.

To aid applicants in identifying those sections of documents submitted to federal launch ranges that are relevant to the applicant's launch application, the Office has prepared "Comparison of OCSST Safety Approval Requirements for Launches from a Federal Launch Range with Air Force Range User Requirements." Figure 2. This comparison may be used by an applicant as a guide to satisfying subpart C requirements. It is illustrative only, and where it appears to conflict with the proposed regulations, the regulations govern. Although the comparison applies only to launch ranges operated by the Air Force, the Office intends it to be helpful for applicants using all federal launch ranges. The Office plans to prepare similar matrices for other federal launch ranges in the near future, and invites industry comments on this approach.

Proposed § 415.33 requires an applicant to document its safety organization. The applicant must possess a functioning safety organization because an applicant cannot ensure safety without someone designated as responsible for safety issues. The Office will evaluate whether the structure, lines of communication, and approval authority the applicant establishes will enable the applicant to identify and address safety issues and to ensure compliance with the requirements of range safety and the Office's regulations. How the federal launch range's safety services are integrated with the licensee is also relevant. The Office expects that for launches from federal launch ranges the applicant will structure its safety organization to ensure compliance with federal launch range requirements, such as, for example, Eastern and Western Range Regulation 127-1 for Air Force launch ranges. The Office believes that charts are the most efficient way to depict much of the required information. An applicant should include one or more, as appropriate, organizational charts that will delineate the lines of communication and the internal decision making process. In providing this information, the applicant should include those services of the federal launch range upon which the applicant proposes to rely, and those of any other organization providing flight safety services. The applicant's

description must include interfaces with the federal launch range and should explain how the safety policies and procedures of all segments of the safety organization identified above will be implemented.

Proposed § 415.33(b) would require an applicant to have a safety official possessing safety authority. In order to keep safety concerns separate from mission goals, the person responsible for safety should have the ability to perform independently of those parts of the applicant's organization responsible for mission assurance, and should also have the authority to report directly to the person in charge of licensed launches. The safety official should be identified by title or position and by qualifications rather than by name.

Although risk is inherent in the launch of a launch vehicle, proposed § 415.35 establishes limits on how much risk the Office will allow for a commercial launch. Proposed § 415.35 explains that acceptable flight risk through orbital insertion is measured in terms of collective risk. Collective risk constitutes the sum total risk to that part of the public which constitutes an exposed population over a region exposed to a launch. The public includes everyone except essential launch area personnel. Accordingly, government personnel who are not essential to a launch are defined as the public for purposes of measuring acceptable risk. The Office proposes to prohibit certain eventualities to reduce flight risk following orbital insertion.

Pursuant to proposed § 415.35(a), the collective risk associated with an applicant's proposed launch, measured by expected casualty (E_c), shall not exceed 30×10^{-6} . The Office's proposed risk threshold reflects acceptable collective risk. Individual annual risk describes the probability of serious injury or death to a single person, and is, perhaps, the more common measure of risk. The launch industry's common measure of risk is collective risk, which may then be measured as individual risk in light of the factors associated with any given launch. Individual risk may be correspondingly less than collective risk, depending on the size of the population exposed. This means that a collective risk of E_c of 30×10^{-6} is more strict than an individual risk of 1×10^{-6} (1 per million). For example, with a collective risk of 30×10^{-6} , and a population of one hundred thousand exposed to a particular launch, the risk to any one individual is $.3 \times 10^{-9}$ (three tenths per billion). For purposes of comparison, the Office notes that the Air Force describes the collective risk level proposed as no greater than that

voluntarily accepted in normal daily activity. *Eastern and Western Range 127-1 Range Safety Requirements*, Sec. 1.4, 1-12 (Mar. 31, 1995). For example, a person has a one in 600,000 chance over a lifetime of being hit by lightning, which is a greater risk than the Office proposes to allow for launch. The Office invites public comment regarding the adequacy, for purposes of safety, of the standard it proposes.

This standard derives from launch risk guidance employed by the Air Force at Cape Canaveral Air Station and Vandenberg Air Force Base to define acceptable risk. The Office proposes to adopt this standard because the Office believes that commercial launches should not expose the public to risk greater than normal background risk. NASA employs an E_c of 1×10^{-6} at its Wallops Flight Facility, for the launch of small launch vehicles. Only a few commercial launches have taken place at Wallops since 1988. Rather than employing the standard used by NASA for its Wallops launches, the Office decided to use the Air Force standard, reflecting as it does the standard already in place for the majority of commercial U.S. launches, and for the majority of government launches of vehicles of a comparable size. No casualties arising out of a government or commercial launch have occurred to the public under this standard.

The Office is aware that the Air Force implements this standard as "acceptable launch risk without high management (Range Commander) review." *Eastern and Western Range 127-1 Range Safety Requirements*, Sec. 1.4.1, 1-12. This means that based on national need and the approval of a range or wing commander the Air Force may allow a launch with a predicted expected casualty risk of greater than 30×10^{-6} . *Id.* The Office believes that the proposed standard should be met for all commercial launches, however, so that the general public will not be exposed to a higher than normal risk from a commercial activity. The Office recognizes that many commercial launches carry government payloads, and that there may be a national need to launch a critical national payload with a predicted launch risk of greater than 30×10^{-6} . An applicant proposing to launch such a payload would have to request a waiver from the Office and show that national need warranted waiver of this standard. The Office would also work with any government payload owner or operator to resolve such an issue.

Proposed § 415.35(c) requires an applicant to submit an analysis identifying hazards and assessing risks

for flight under nominal and non-nominal conditions. A federal launch range will sometimes perform a quantitative analysis for flight until orbital insertion, or, for a suborbital mission, until impact, or, for example, may determine that an analysis of previously approved missions applies or may serve as a basis for a comparative analysis. If an applicant's previously submitted application contains a risk assessment, the applicant need not submit additional analyses for similar launches. In such cases, a comparative analysis may be supplied. So long as a federal launch range's analysis takes into account all aspects of an applicant's proposed launch, the Office will accept a hazard identification and risk analysis performed by a federal launch range.

As an alternative to relying on federal launch range procedures, an applicant may perform its own quantitative risk analysis. Pursuant to proposed § 415.35(c), although an applicant may submit a federal range risk analysis, the applicant bears the burden of demonstrating that predicted risk does not exceed an expected casualty of 30×10^{-6} . To assist applicants, the Office has documented the range safety process for each of the federal ranges. A launch hazard event tree, such as the one described in the Office's *Hazard Analysis of Commercial Space Transportation*, provides an acceptable method for identifying hazards and assessing risks.

The Office is interested in comments on this proposed approach. Two other approaches were considered. One was to have no application requirements for hazard identification or risk analysis at all. This approach was not selected because it would not provide the Office with the necessary assurance that predicted risk would remain within acceptable levels, namely $E_c \leq 30 \times 10^{-6}$. The second approach the Office considered was to require an applicant to develop its own criteria and procedures for identifying hazards and assessing risks for flight until orbital insertion, and to demonstrate compliance with the Office's standard without the use of any federal launch range analysis. The Office, however, believed that requiring an applicant to invent its own procedures would ignore the experience and capability of the federal launch ranges as documented in the Office's baseline assessments and would put an unnecessary burden on the industry. Instead, the approach chosen maximizes the use of federal launch range analyses, while at the same time ensuring that the Office licenses only those applicants who do

not expose the public to risks greater than $E_c \leq 30 \times 10^{-6}$.

Under proposed § 415.35(b), an applicant's launch proposal must ensure that for all launch vehicle stages or components that reach earth orbit that there is no unintended physical contact of the vehicle or its components with the payload after payload separation. The applicant's proposal must also ensure that debris generation will not result from the conversion of energy sources into energy that fragments the vehicle or its components. Those involved in commercial, defense and scientific uses of space are voicing a growing space safety concern due to the increasing number of objects being placed in orbit, which increases the potential for collisions between objects in space. Collisions in turn create additional space debris. The operation of launch vehicles in space affects and is affected by hazards associated with space debris. Accordingly, the Office proposes the requirements of paragraph (b) to mitigate hazards associated with space debris.

Federal launch ranges do not evaluate risks posed by either the launch vehicle upper stages or the attached payload while on orbit or reentering. Federal launch ranges perform a collision avoidance analysis, commonly referred to as a COLA, prior to launch to ensure that manned or potentially manned spacecraft will not be affected during the first 24 hours following orbital insertion of the launch vehicle.

Proposed § 415.37 requires that an applicant design and operate its launch vehicle to ensure that the flight of the launch vehicle does not exceed acceptable flight risk. This means that integration of the applicant's launch vehicle, procedures, personnel, support equipment, and facilities with a federal launch range's flight support resources and services will result in a calculated flight risk, measured by expected casualty, for any one launch that does not exceed 30×10^{-6} , and that the requirements of § 415.35(b) are satisfied as well.

Section 415.37(a) proposes to require an applicant to identify and describe its launch vehicle structure, the vehicle's hazardous and safety-critical systems and provide drawings and schematics for each system identified. Because federal launch ranges require an applicant to provide a detailed description of the applicant's launch vehicle and its systems, including drawings and schematics, the requirements of paragraph (a) may be satisfied by providing the Office with a copy of all or appropriate portions of the documentation provided to a federal

launch range. The Office would not use the data to duplicate the federal launch range's design approval process, but to document the characteristics of the launch vehicle being licensed.

Section 415.37(b) proposes to require a description of the information necessary for ensuring that launch operations satisfy the criteria contained in proposed § 415.35. Section 415.37(b) proposes to require an applicant to describe the launch operations and procedures that the applicant will employ to mitigate risks for flight both before and after orbital insertion. The applicant should eliminate or control by design all identified hazards to acceptable levels. Typical hazard controls for flight until orbital insertion used at current launch ranges include flight termination systems, azimuth and elevation adjusting based on real-time wind weighting analysis, evacuating personnel from high risk areas, modifying vehicle trajectory to avoid high risk areas, and delaying launch until more favorable conditions exist. Applicants may rely on the methods used by federal launch ranges to identify hazard controls and to ensure that the hazard controls will be effective. A number of standard industry practices reduce potential on-orbit risks arising out of flight following orbital insertion. A launch operator may maneuver its launch vehicle orbital stage after payload separation to minimize the likelihood that the orbital stage will recontact the payload. This avoids the consequences of either a malfunctioning payload or orbital debris. In order to reduce the possibility of future explosions that could create orbital debris, a launch operator may render liquid fueled orbital stages as inert as possible by expelling all propellants and pressurants and protecting batteries from spontaneous explosion. A launch operator may keep stage-to-stage separation devices and other potential debris sources captive to a stage with lanyards or other means. Also, a launch operator may choose launch times to geosynchronous earth orbit designed to align the final orbit of the orbital stage so as to lower the perigee of the stage more quickly than other orbits.

Section 415.37(c) proposes to implement the Office's current flight readiness guidelines. The requirements proposed arise out of recommendations from a National Transportation Safety Board (NTSB)⁵ investigation of an anomaly that occurred during a commercial launch from a federal

launch range. Requirements intended to ensure the readiness of a launch team include designation of an individual responsible for flight readiness, launch readiness reviews, use of a safety directive, countdown checklists, dress rehearsals procedures, and procedures for crew rest.

The Office recognizes that there are many reviews conducted of a launch system from its initial design up to flight. However, in proposed section 415.37(c)(1), the Office places special emphasis on a flight readiness review, or its equivalent. A review is typically conducted not more than one or two days prior to scheduled flight. In most cases a flight readiness review is standard practice at federal launch ranges, but the Office considers the review, and the topics required in this section, to be so important that the applicant must, in its application, commit to a meeting and identify the topics to be addressed. This review must ensure that all system and personnel readiness problems are identified and are associated with a plan to resolve them, that all systems needed for launch have been checked out and are ready, and that each participant is cognizant of his or her role on the day of launch. If this review revealed unresolved issues, the licensee would be able to assess its ability to resolve those issues before the intended launch time or to delay the launch, as appropriate.

Proposed § 415.37(c)(2) would require an applicant to possess procedures that ensure mission constraints, rules and abort procedures are contained in a single document approved by licensee flight safety and federal launch range personnel.

Proposed § 415.37(c)(3) would require an applicant to employ procedures that ensure that all launch countdown checklists are current and consistent. Past inconsistencies in critical countdown checklists and procedures have raised serious safety concerns. The Office recognizes that it may be impractical for all launch participants to have identical checklists due to differences in the roles of launch participants. The applicant should, however, have some process, such as a master countdown manual, to ensure the currency and consistency of all participants' checklists during countdown to flight. This will ensure that confusion and uncertainties on launch day are minimized, that flight safety critical procedures are completed successfully, and that those individuals with launch decision authority know what is going on and are able to make sound decisions.

Proposed § 415.37(c)(4) requires an applicant to have procedures for the conduct of dress rehearsals. As demonstrated in the past, the poor performance of a dress rehearsal may indicate the lack of readiness of individuals or systems responsible for safety. The applicant's procedures should include criteria for determining when dress rehearsals are not necessary. The Office recognizes that although dress rehearsals may not be necessary in every case, they may be critical to those launch companies which are new to a launch site, or to those that are launching a new launch vehicle. A number of launch companies have been conducting routine launches of the same vehicle for many years. If an applicant does not plan to hold dress rehearsals prior to any of its launches under any circumstances, the applicant should explain why rehearsals are not necessary. However, even those launch operators that routinely conduct launches typically have certain criteria and procedures in place to verify that the launch team is ready for launch, especially if a considerable period of time has elapsed since the last launch took place.

For those situations where dress rehearsals are necessary, the dress rehearsal should simulate both nominal and non-nominal conditions, induced not only by the launch vehicle or payload, but by the range safety system as well. Anomalies introduced during the rehearsal should exercise and prove the abilities of all launch participants, including federal launch site personnel, to recognize an event that compels a launch hold or delay. The Office is interested in views as to any need for future standards relating to rehearsals and the criteria for deciding, based on performance during the rehearsal, that it is acceptable to proceed with the launch.

Proposed § 415.37(c)(5) responds to another NTSB recommendation, and requires that an applicant ensure that its flight safety personnel adhere to federal launch range crew rest rules. Experience has shown that launch crew rest criteria for all those involved in supporting launch operations are extremely important and can have a significant impact on public health and safety. Federal launch ranges typically have such requirements. Based on current knowledge and the demonstrated safety history of the federal ranges, the Office would consider adequate a commitment by the applicant to adhere to these requirements. Other rest criteria proposed by an applicant may be acceptable if the applicant requests a waiver of the Office's rules and

⁵ The NTSB is an independent agency, and is not part of the Department of Transportation.

demonstrates that the criteria would be adequate. The Office is interested in any opinions regarding the need for established minimum standards for crew rest.

Proposed § 415.39 requires an applicant to submit a communications plan that ensures that licensee and federal launch range personnel receive safety-critical information during countdown and flight. The NTSB, after its investigation of a launch anomaly, concluded that effective communications are critical to the conduct of a safe flight. Everyone involved in a launch needs to know not only what channel has been assigned for particular communications, but the proper protocol for communicating on that channel. The Office recognizes that a number of different individuals typically have input and decision authority with respect to the readiness of various launch and safety systems. Past experience has shown that serious mishaps could result if these relationships are not clearly defined and understood by all parties. These relationships should therefore be identified by the applicant. Identifying persons with authority to make "hold" and "go/no-go" decisions is critical to ensuring that on launch day, everyone knows who can call a "hold" and, more importantly, who has the authority to authorize the resumption of the countdown. This will help eliminate confusion and cross-talk that could cause a miscommunication leading to an unsafe condition. In addition, at approximately five or ten minutes prior to flight, the Office requires that everyone who has a decision-making role, or who, by action or inaction can either prevent or allow a launch to take place, be on the same predetermined channel.

Proposed § 415.41 requires an applicant to submit an accident investigation plan. The accident investigation plan should comply with the reporting requirements identified in proposed section 415.41(b), and should contain procedures for responding to a launch accident, incident or other mishap.

Proposed § 415.43 contains procedures employed by the Office when it denies an applicant a safety approval and describes the recourse available to that applicant. If an applicant fails to obtain a safety approval, the applicant may attempt to correct the deficiencies which resulted in the denial and request reconsideration of the denial, or, upon denial of a license, it may request a hearing.

The Office proposes to conduct a payload review and determination pursuant to 49 U.S.C. § 70104(c) of the Act. The Act provides that the Secretary of Transportation may prevent the launch of a particular payload if the Secretary determines that the payload's launch would jeopardize the public health and safety, safety of property, or national security or foreign policy interests or international obligations of the United States. Proposed subpart D explains when a payload review and determination are required and the elements of that review. Addition of this subpart constitutes a change from current practice because the payload review would no longer be performed as part of the policy review proposed by the new rules. This subpart would also allow either a launch license applicant or a payload owner or operator to apply for a payload determination separately from a launch operator's license application. A launch license applicant's decision to seek a payload determination separately from a license application might be based on uncertainty with respect to payload issues and a desire to gain a payload determination before undertaking the additional effort required to prepare a complete launch license application.

Although a payload determination is required for a license, it is not necessarily a requirement imposed on a license applicant. A license applicant may not receive a license without a payload determination, unless the payload is otherwise exempt, but an applicant need not itself apply for a payload determination if it has otherwise been issued. In addition to the fact that many payloads are exempt from Office consideration, an applicant may incorporate by reference a payload determination issued earlier to the applicant or to a payload owner or operator. Alternatively, an applicant may reference a separate application submitted by another launch license applicant for a payload determination and request that the Office incorporate its earlier determination.

The Office does not believe that this flexible approach would affect the statutory requirement that the Office complete its license application review within 180 days. Submission of a request for a payload determination does not constitute the filing of a complete application, and a license application is not complete without a request for a payload determination. The Office is considering issuing conditional licenses on those occasions when a request for a payload determination has yet to be completed. This would mean that a license would

be issued subject to or conditional upon issuance of a payload determination. The Office once issued a conditional license to an applicant who proposed to launch a reentry vehicle as its payload. The reentry vehicle was still under development, but the Office issued a launch license conditioned upon eventual submission of all required payload information and a final determination by the Office regarding the payload.

The Office also addresses payload safety issues because payload safety is not otherwise part of the safety evaluation of the launch. Payload issues considered during the review include, but are not limited to, unique launch safety issues, the payload owner(s), and the payload function. For example, a past payload issue included the nature of the cargo. In that case the payload cargo consisted of cremains, which are human remains reduced to small pellets. A safety issue addressed was whether the pellets would be dispersed while in orbit.

Proposed § 415.51 describes the scope of an Office payload review. Pursuant to proposed § 415.53, the Office will not review payloads owned and operated by the government of the United States or those that are subject to the regulation of the Federal Communications Commission or the Department of Commerce, National Oceanic and Atmospheric Administration.

Proposed § 415.55 allows the Office to make a determination regarding a proposed class of payloads, including, for example, communications, remote sensing or navigation satellites. When an applicant requests an operator license to conduct unspecified but similar launches over a period of five years, the applicant will not always be able to identify specifically each payload to be launched. The applicant must describe the class or classes of payloads proposed for launch under the license and general characteristics of those payloads. In these cases, the licensee must later provide additional descriptive information regarding the specific payload prior to flight as described in § 415.79(a).

Proposed § 415.57 provides procedures an applicant must follow to obtain a payload determination. The Office coordinates a payload review with other government agencies such as the Departments of Defense, State, and Commerce, the National Aeronautics and Space Administration and the Federal Communications Commission. The information requested under proposed § 415.59 is required to identify and address possible safety and policy issues related to the payload, and to

conduct any necessary interagency review. In most instances, the information submitted may be brief, but in cases which present potential unique safety concerns considerable detail may be necessary regarding the physical characteristics, functional description and operations of the payload.

Proposed § 415.61(a) explains that the Office will issue a payload determination unless policy or safety considerations prevent launch of the payload. Proposed § 415.61(b) contains the procedures employed by the Office were it to deny an applicant a payload determination and describes the recourse available to that applicant. If an applicant fails to obtain a payload determination, the applicant may attempt to correct the deficiencies which resulted in a denial and request reconsideration of the denial, or, upon denial of a license, it may request a hearing.

Proposed § 415.63 addresses incorporation of a payload determination into subsequent license reviews. It also explains that any change in information provided to the Office must be reported in accordance with applicable rules.

Proposed subpart E addresses post-licensing requirements, including license terms and conditions. This subpart describes a licensee's public safety responsibilities under proposed § 415.71. Proposed § 415.73 describes the circumstances which require a licensee to apply for an amendment to its license. A launch licensee must ensure the continuing accuracy of representations contained in its application for the term of its license, and must conduct its licensed launches as it has represented that it will. This means that if any information a licensee provides pursuant to part 415 is no longer accurate, a licensee must apply for an amendment to its license. For example, if a licensee intends to alter its accident investigation plan, it must request an amendment to do so.

The remainder of subpart E contains license terms and conditions applicable to all licensees. Proposed § 415.75 requires a licensee to enter into an agreement with the federal launch range from which it proposes to launch. Proposed § 415.77 requires a licensee to maintain those records that pertain to activities carried out under a license issued by the Office. Proposed § 415.79 requires a licensee to report certain information before each launch. Proposed § 415.81 contains requirements for registration of space objects, including a new provision that a licensee need not register objects owned and registered by the

government of the United States. Proposed § 415.83 requires a licensee to comply with financial responsibility requirements as specified in a license or license order. Proposed § 415.85 explains that a licensee is required to cooperate with the compliance monitoring responsibilities of the Office.

Proposed subpart F describes the Office's safety review for a proposed launch from a launch site not operated by a federal launch range. The Office will conduct a review on an individual, case by case basis until it issues regulations of general applicability.

Proposed subpart G incorporates the Office's environmental review requirements, current §§ 415.31 and 415.33, which require the Office to comply with applicable environmental laws and regulations, and state that the applicant must provide the Office with the information required for doing so. The proposed relocation represents no substantive change from the current regulations.

E. Part 417—Site Operator License

Because the Office proposes to remove and reserve part 411, which contains § 411.3 governing the licensing of the operation of a launch site, the Office proposes part 417 to govern the licensing of the operation of a launch site. The Office will license the operation of a launch site on an individual, case by case basis until it issues regulations of general applicability. Until then, an applicant for a site operator license should refer to the Office's draft guidelines for application requirements.

V. Statutory Authority for Proposed Rules

These proposed rule changes are proposed pursuant to 49 U.S.C. Subtitle IX, Commercial Space Transportation, ch. 701—Commercial Space Launch Activities, §§ 70101–70119, formerly the Commercial Space Launch Act of 1984, as amended.

VI. Regulatory Burden and Costs

This NPRM has been reviewed by the Office of Management and Budget under E.O. 12866. Under regulatory policies and procedures of the Department of Transportation, this proposed rule is considered significant because there is substantial public interest in the rulemaking. 44 FR 11034 (Feb. 26, 1979).

A. Regulatory Evaluation

An assessment of the potential costs and benefits of the proposed regulatory action was performed as is required by Executive Order 12866. A baseline case

was stipulated which assumes that every licensed commercial space launch is issued one and only one license, and that that license covers all activities (beginning when the launch operator commences launch-related activities on the federal range).⁶ This baseline was then compared to current practice under which launch operator licenses for up to two years are issued to cover launch activities beginning when the licensee begins preparation for launch on the federal range. Then the provisions of the proposed regulation were compared to current practice.

The primary impacts of the proposed regulations are on licensees (generally launch firms) as the primary regulated community and on the government of the United States (the Office as the implementer of the regulations and the U.S. Treasury). The effects on launch companies are reduced paperwork costs, and increased business certainty (i.e., reduced uncertainty relating to license requirements and resulting costs). Specific impacts on launch firms include:

- Reduced paperwork and administrative costs resulting from the availability of the launch operator license,
- Increased certainty regarding requirements attendant with obtaining and maintaining a license,
- Increased certainty that would result from being issued a launch operator license covering multiple launches as compared with a license for each launch,
- Greater certainty regarding the scope of a launch license,
- Possibly increased risk due to narrower definition of launch period (and consequently narrower period during which licensee might be indemnified by the government).

The more narrow definition of launch would result in less time during which the activities of a licensee would be subject to the financial responsibility and risk allocation scheme of the Act. This means that the possibility of indemnification is correspondingly shorter. During the time that a launch company is present at a federal launch range, but its launch vehicle is not present, there would be no possibility of indemnification under the proposed definition of launch were an accident to occur. Instead, a launch operator would

⁶ Although the Office practice has evolved toward the multiple license approach contained in the proposed regulations, it was believed that it would be more appropriate to use the previous Office practice as a baseline, so the economic impacts identified in such a comparison would reflect the real impacts of the changes from current regulations.

have to make its own evaluations regarding the necessity for and amount of insurance required for its activities. The Office believes that insurance for industrial operations is available, but does not have information regarding its necessity or the impacts, if any, on the price of insurance, financial risk investment decisions or other financial impacts of the Office's proposal to truncate the possibility of indemnification. Accordingly, the Office requests comments regarding these issues.

Annual savings to industry resulting from the paperwork and administrative impacts were estimated to be \$536,000 when current practice is compared with the baseline and \$180,000 when the proposed regulation is compared with current practice. The benefits of increased certainty were not quantifiable. The impact of possibly higher risk was considered to be so low as to be considered inconsequential.

The specific impacts on the Office are greater certainty about future operations and better ability to plan due to the institution of launch operator licenses. Another impact is reduced paperwork and administrative costs that result from processing fewer, albeit more costly licenses. This is expected to result in cost savings to the Office of about \$1,266,000 annually when current practice is compared with the baseline, and \$177,000 annually when the proposed regulation is compared with current practice. Over the four-year time horizon⁷ of this analysis, total benefits to both industry and government total approximately \$7,208,000 when current practice is compared with the baseline and about \$1,428,000 when the proposed regulation is compared with current practice. There is also a slightly lower risk to the U.S. Treasury that it would be called upon to indemnify for third-party damages under the indemnification provision of the statute, because the launch phase is more limited under the regulation. This risk is expected to be extremely low and has not been quantified. The overall primary impacts of the regulation are expected to result in net benefits to industry and the government.

Limited secondary impacts on payload owners, new market entrants, and insurance firms were found but

were not quantified. It was impossible to predict the direction of impacts on insurance firms, while identified potential impacts on payload owners and new market entrants were likely to provide net benefits.

A copy of the regulatory evaluation analysis is filed in the docket and may also be obtained from the Office.

B. Regulatory Flexibility Act Analysis

I certify that this rule would not, if adopted as proposed, have a significant economic impact on a substantial number of small entities. The Small Business Administration has defined small businesses in the space industry as entities composed of fewer than 1000 employees. The Office licenses approximately half a dozen entities for launch from federal ranges. Only one licensee has fewer than 1000 employees. In addition, a modest annual savings to industry resulting from paperwork and administrative impacts were estimated to be \$536,000 when current practice is compared with the baseline and \$180,000 when the proposed regulation is compared with current practice. Accordingly, the proposed rules are not expected to have a significant impact on a substantial number of small entities.

C. International Trade Impact Assessment

The impact of the proposed rule on international trade is expected to be beneficial. The proposed rule streamlines the launch license procedures to the benefit of U.S. industry, and provides prospective site operators greater information and certainty to the ultimate benefit of their ability to plan. These approaches should redound to the benefit of U.S. industry as it confronts foreign competition.

D. Federalism Implications

The proposed regulations would not have substantial direct effects on the states, on the relationship between the federal government and the states, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12612, it is determined that the proposed regulation does not have sufficient federalism impacts to warrant the preparation of a federalism assessment.

E. Paperwork Reduction Act

Parts 413 and 415 of the proposed rules contain information collection

requirements. In accordance with the Paperwork Reduction Act of 1995, 44 U.S.C. 3501 *et seq.*, the information collection requirements associated with these proposed rules are being submitted to the Office of Management and Budget for approval under OMB No. 2105-0515, TITLE: Commercial Space Transportation Licensing Regulations. The information to be collected includes data to support policy and safety reviews, data to support payload reviews, and environmental impact information. The required information will be used to determine if a license applicant is eligible for a license to launch a launch vehicle.

The annual cost per year is calculated by multiplying the estimated cost per application by the total number of applications received on a yearly basis. The estimated cost per application is calculated by multiplying the estimated hourly wage rate by the estimated average hours required for processing by the government and for industry preparation of an application. The unit cost for each launch license application is calculated by employing a cost of \$59.00 per hour. This cost includes programmatic costs associated with government personnel and overhead. The industry rate is also \$59.00 per hour for industry managerial, engineering and clerical personnel involved in gathering, reviewing and formatting the information required for each application. Burden hours were obtained based on engineering information. The burden is expected to decrease compared with existing paperwork requirements because the proposed regulations clarify the application requirements. Average burden hours per application are expected to approximate 518 hours for a launch operator license and 421 hours for a launch specific license.

Comments on the proposed information collection requirements should be submitted to: Office of Management and Budget, Washington, DC 20503, Attention: Desk Officer for the Federal Aviation Administration. It is requested that comments sent to OMB also be sent to the rulemaking docket for this proposed action, FAA Rules Docket Federal Aviation Administration, Office of the Chief Counsel, Attention: Rules Docket (AGC-200), Docket No. 49815, 800 Independence Avenue, SW., Washington, DC 20591.

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⁷ The Statute has a five-year sunset clause of which one year has already passed—hence the four year consideration.

Figure 1
Launch Licensing Process Flow Chart

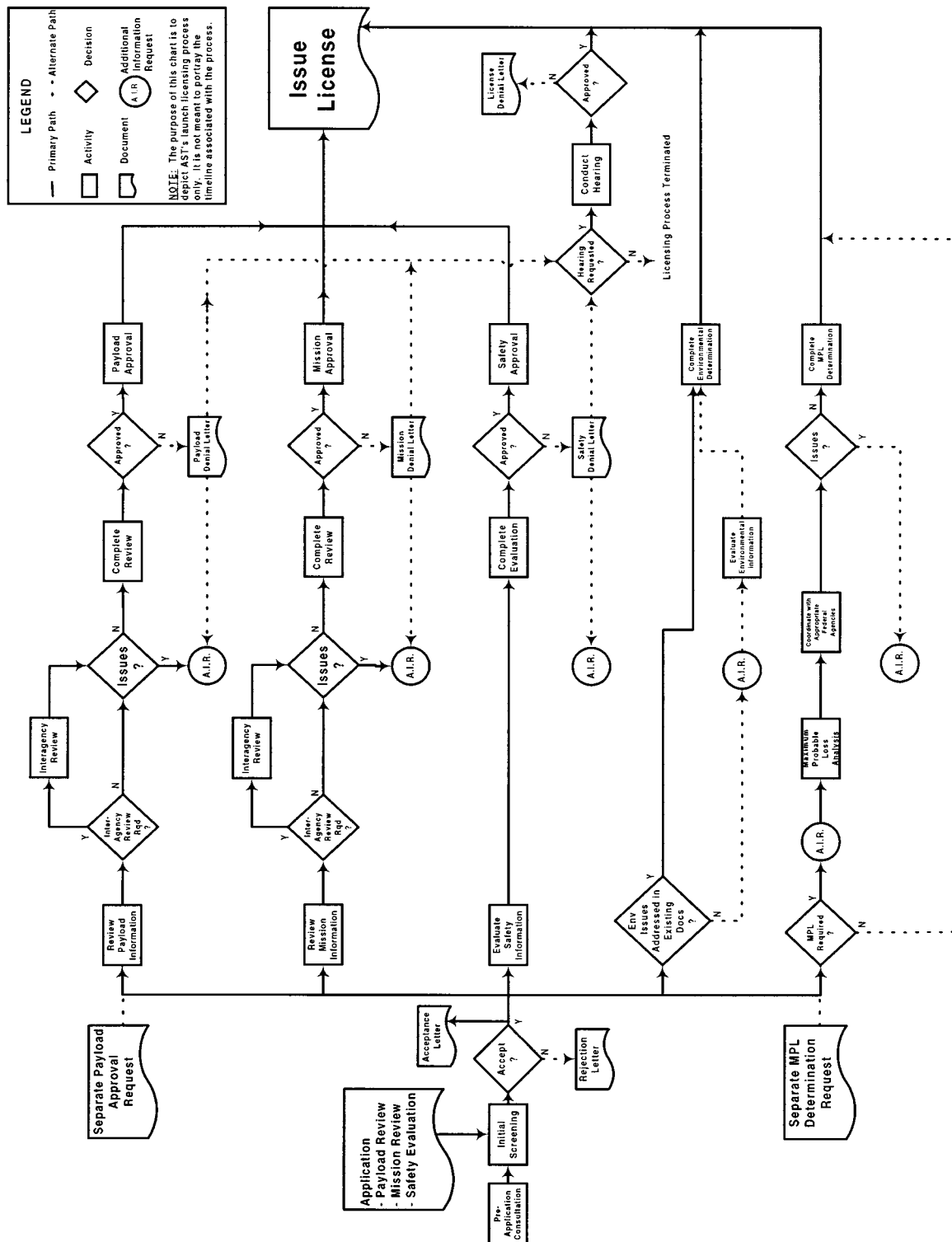


FIGURE 2.—COMPARISON OF FAA/CST SAFETY APPROVAL REQUIREMENTS FOR LAUNCH FROM A FEDERAL LAUNCH RANGE WITH AIR FORCE RANGE USER REQUIREMENTS

Proposed FAA/CST regulations	Related Air Force range requirements (Eastern and Western Range Regulation (EWRR) 127-1, Mar. 31, 1995)	Requirement comparison
<p>415.33 Safety Organization</p> <p>(a) Maintain a safety organization and document it by identifying lines of communication and approval authority for all flight safety decisions. Lines of communication shall ensure that personnel perform flight safety operations in accordance with range safety and subpart C requirements. Approval authority shall ensure compliance with range safety and subpart C requirements.</p> <p>(b) Safety Official. Identify a qualified safety official authorized to:</p> <ul style="list-style-type: none"> • examine all aspects of flight safety operations, • monitor independently personnel compliance with safety policies and procedures, and • report directly to the person responsible for approval of launches, who shall ensure that all of the safety official's concerns are addressed prior to launch. 	<p>§ 1B.1.3.1: The range user is required to describe its system safety organization in a System Safety Program Plan (SSPP), to include:</p> <ul style="list-style-type: none"> • safety organizational and functional relationships; • lines of communication (§ 1B.1.2c); • responsibility and authority of personnel; • staffing of the safety organization; • the decision process for safety related issues; • and identification of the organizational unit responsible for performing each task. <p>§ 1B.1.1.2: The range user is required to establish and maintain a key system safety position for each program. The individual in this position must be directly responsible to the range user program manager for safety matters.</p>	<p>The parts of the SSPP related to flight safety may meet FAA's requirement if all of FAA's required elements are addressed.</p> <p>The safety official required by the combination of § 1B.1.1.2 and § 1B.1.3.1 may meet FAA's requirement if all of FAA's required elements are addressed.</p>
<p>415.35 Acceptable Flight Risk</p> <p>(a) Flight risk through orbital insertion. Acceptable risk level: $E_C \leq 30 \times 10^{-6}$.</p> <p>(b) Flight risk following orbital insertion. Prevent physical contact between vehicle or its components and payload. Prevent debris generation from conversion of energy sources into energy that fragments the vehicle or its components.</p> <p>(c) Hazard analysis and risk assessment. Submit an analysis assessing risks to public health and safety and safety of property associated with nominal and non-nominal flight.</p>	<p>§ 1.4.1: Acceptable launch risk without high management review is $E_C \leq 30 \times 10^{-6}$.</p> <p>§ 1.3.7.2: Range safety control ends at orbital insertion. A range uses Collision Avoidance (COLA) data to determine the risk of collision with a manned or mannable object.</p> <p>§ 2.6, 2.8, 2.11: The range user is required to provide the data necessary for range safety to perform a hazard analysis and risk assessment for the range user's specific vehicle.</p>	<p>The Federal Range Commander may approve risk levels higher than $E_C \leq 30 \times 10^{-6}$ where national interests require.</p> <p>FAA's requirements are not required by the range.</p> <p>If the applicant submits the hazard analysis and risk assessment performed by the range, the hazard analysis and risk assessment addresses all flight risks and the risk meets the requirement of $E_C \leq 30 \times 10^{-6}$ for a single launch, the FAA requirement is met.</p>
<p>415.37 Launch Safety Design and Operations</p> <p>(a) Provide overview of launch vehicle, including structure and hazardous and safety-critical subsystems. Include drawings and schematics for each system.</p> <p>(b) Identify all launch operations and procedures that must be performed to ensure acceptable flight risks.</p>	<p>§ 3A.2.3: The range requires the user to provide an overview of the launch vehicle.</p> <p>§ 1.3.8: The range requires the user to submit documents regarding flight safety for review and approval. These documents must include the information the range needs in order to conduct flight safety operations.</p>	<p>A copy of the overview that satisfies the range requirements will satisfy FAA's requirement.</p> <p>The portions of the documents provided to the range that identify launch operations and procedures related to flight safety may meet FAA's requirement if all of FAA's required elements are addressed. Range flight safety procedures documented in the FAA's Baseline Assessment may also be referenced to identify launch operations and procedures performed by a range.</p>

FIGURE 2.—COMPARISON OF FAA/CST SAFETY APPROVAL REQUIREMENTS FOR LAUNCH FROM A FEDERAL LAUNCH RANGE WITH AIR FORCE RANGE USER REQUIREMENTS—Continued

Proposed FAA/CST regulations	Related Air Force range requirements (Eastern and Western Range Regulation (EWRR) 127-1, Mar. 31, 1995)	Requirement comparison
(c) Flight readiness requirements. Designate an individual responsible for flight readiness, and submit (1) through (5):	<p>§ 7.2.2: The Chiefs of Safety of the 45th and 30th Space Wings, or their designated representatives, are responsible for:</p> <ul style="list-style-type: none"> • Providing range users with a Range Safety Launch Operations Approval Letter no later than a Launch Readiness Review (LRR); and • Providing the final range safety approval to launch. Issuance of the Launch Operations Approval Letter depends on the range user having obtained the previously required approvals (e.g., § 1.5.2.1 items a through f; § 1.5.2.2 items a through n). <p>§ 7.2.3: During countdown, a Missile Flight Control Officer is responsible for determining whether a launch should proceed.</p>	FAA's requirement for the applicant to designate an individual responsible for flight readiness is not a range requirement.
<p>(1) Procedures that ensure a launch readiness review is conducted with applicant's flight safety personnel and federal launch range personnel involved in the launch. The review must provide the following to the individual responsible for flight readiness:</p> <ul style="list-style-type: none"> • Flight readiness of federal launch range property and services; • Flight readiness of launch vehicle and payload; • Flight readiness of flight safety systems; • Mission rules and launch constraints; • Abort, hold, and recycle procedures; • Results of dress rehearsals and simulations; • Unresolved safety issues and plans for resolution; and • Other safety information to determine flight readiness. 	<p>The range holds a LRR to determine if the range is ready to support a particular launch operation. This review covers all elements of support that the range will provide to the range user. The requirement for the LRR is contained in AFSPACOM Regulation 55-32 "Operations Readiness Review of Space and Missile Systems."</p>	FAA requires the applicant to conduct a meeting to verify readiness of the vehicle and launch team, which includes range support. The LRR held by the range may meet FAA's requirement if all of FAA's required elements are addressed.
<p>(2) Procedures that ensure mission constraints, rules, and abort procedures are listed and consolidated in a safety directive or notebook;</p>	<p>§ 6.17 At a minimum, procedures for the launch countdown and prelaunch count shall contain the operations safety functions for the specific launch vehicle and payload systems.</p> <p>§ 6A.2.4a List all non-hazardous, hazardous, and safety critical procedures. . . .</p> <p>§ 7.4.5 A copy of the final range user countdown checklist for each operation shall be provided. . . .</p> <p>§ 7.2.4.1: The range develops mission rules in conjunction with the range user.</p> <p>§ 7.4: Range safety develops a Range Safety Operations Requirement (RSOR) and an Operations Supplement (OpsSup).</p>	The FAA requirement is not required by the range, but an applicant may rely on the mission rules and operations requirements developed by the range to satisfy a portion of the FAA requirement and may employ them in the applicant's safety directive or notebook.
<p>(3) Procedures that ensure currency and consistency of applicant and federal range countdown checklists;</p>	<p>§ 7.2.8: The range user is required to provide telemetry measurement lists, countdown checklist, and special command requirements and requests.</p> <p>§ 6B1.5: One copy of procedures involving hazardous or safety critical operations shall be submitted to range safety and one copy to operations safety for review and approval. . . . Final approved, published procedures incorporating range safety comments shall be submitted to range safety. . . .</p>	The FAA requirement is not required by the range, because the range requirement does not require procedures that specifically ensure currency and consistency of checklists.
<p>(4) Dress rehearsal procedures;</p>	<p>The range does not require dress rehearsals.</p>	The FAA requirement is not required by the range.
<p>(5) Procedures for ensuring the applicant's flight safety personnel adhere to federal launch range crew rest rules.</p>	<p>§ 6.5.1.4: The range user is required to comply with range work time restrictions.</p>	The FAA requirement is satisfied when the applicant commits to meeting the range requirements.

FIGURE 2.—COMPARISON OF FAA/CST SAFETY APPROVAL REQUIREMENTS FOR LAUNCH FROM A FEDERAL LAUNCH RANGE WITH AIR FORCE RANGE USER REQUIREMENTS—Continued

Proposed FAA/CST regulations	Related Air Force range requirements (Eastern and Western Range Regulation (EWRR) 127-1, Mar. 31, 1995)	Requirement comparison
<p>415.39 Communications Plan</p> <p>(a) Submit communications plan providing applicant and federal launch range personnel communications procedures during count-down and flight. Plan must ensure effective issuance and communication of safety-critical information during countdown including hold/resume, go/no go, and abort commands, and describe authority of personnel to issue these commands. Ensure that:</p> <ol style="list-style-type: none"> (1) Communication networks are assigned so that personnel have direct access to real-time safety-critical information; (2) Personnel monitor common intercom channels during countdown and flight; and (3) A protocol is established for utilizing clearly defined communications terminology. <p>(b) Submit procedures that ensure applicant and federal launch range personnel receive the communications plan that has been concurred in by the federal launch range.</p>	<p>The range user requests all range support, including communications support in an Operations Requirement (OR) document; the range responds in an Operations Directive (OD). This is a Universal Documentation System requirement.</p> <p>§ 7.11: The flight control communication circuits shall be specified in the applicable Range Safety Operations Requirements (RSOR). An RSOR shall be developed and published for each applicable Program Requirements Document (PRD) or OR prepared by a range user.</p> <p>§ 7.4.1: The range user requests communications support in an Operations Requirement (OR) document; the range responds in an Operations Directive (OD). This is a Universal Documentation System requirement.</p>	<p>The federal range sets up a communications system to support launch operations. The range also provides any additional communications capabilities required by the range user as specified in the OR and OD. The range support may serve as a portion of the applicant's communications plan, but because the range does not address the requirements of § 415.39(a)(1)–(3), an applicant must satisfy those additional requirements.</p> <p>The FAA requirement is not required by the range.</p>
<p>415.41 Accident Investigation Plan (AIP)</p> <p>(a) Submit an AIP containing the applicant's procedures for reporting and responding to launch accidents, launch incidents, or other mishaps.</p> <p>(b) Reporting requirements. The AIP shall provide for immediate notification to the FAA Operations Center, and submission of a written preliminary report in the event of a launch accident or launch incident.</p> <p>(c) Response Plans. The AIP shall contain procedures that:</p> <ul style="list-style-type: none"> • ensure the consequences of a launch accident, launch incident, or other mishap are contained and minimized; • ensure data and physical evidence are preserved; • require applicant to report to and cooperate with the FAA and NTSB; • designate point(s) of contact; and • identify and adopt preventive measures. <p>(d) Investigation Plans. The AIP shall contain procedures for investigating the cause of a launch accident, launch incident, or other mishap, for reporting investigation results to the FAA, and delineation of responsibilities for personnel assigned to conduct investigations.</p>	<p>§ 1.10.1: The range investigates all mishaps involving Air Force personnel and resources in accordance with Air Force Instruction (AFI) 91-204.</p> <p>§ 6.4.7.2: The range user must include an accident notification plan in its Ground Operations Plan, and must provide proper and timely notification to the range of mishaps involving Air Force property and all significant mishaps.</p> <p>§ 6.4.7.2: The range user notifies the range if a mishap occurs.</p> <p>§ 1.10.1: If a mishap involves Air Force personnel or resources, the range responds and investigates.</p> <p>§ 1.10.1: The range investigates all mishaps involving Air Force personnel and resources. § 1.10.2: Range safety may participate in non-Air Force mishap investigations and must be provided investigation results.</p>	<p>The range does not require the range user to submit an AIP.</p> <p>The FAA's requirement is not required by the range.</p> <p>If the range conducts a portion of FAA's required response, then range involvement would be a component of an applicant's response plans.</p> <p>If the range conducts a portion of FAA's required investigation, then range involvement would be a component of an applicant's investigation plans.</p>

List of Subjects in 14 CFR Parts 401, 411, 413, 415 and 417

Confidential business information, Environmental protection, Organization and functions, Reporting and recordkeeping requirements, Rockets, Space transportation and exploration.

Proposed Regulation

For the reasons set out in the preamble, Title 14, Chapter III of the

Code of Federal Regulations is proposed to be amended to read as follows:

PART 401—ORGANIZATION AND DEFINITIONS.

1. The authority citation for part 401 is revised to read as follows:

Authority: 49 U.S.C. 70102.

2. Section 401.5 is amended by removing the terms *Director*, *Launch*

activity, *Licensee*, *Mission*, and *Safety operations*, by revising the terms *Act*, *Launch*, *Launch vehicle*, *Payload*, and *Person*, and by adding the terms *Associate Administrator*, *Federal launch range*, *Hazardous materials*, *Launch accident*, *Launch incident*, *Launch operator*, *Launch site*, *Mishap*, and *Office*:

§ 401.5 Definitions.

* * * * *

Act means 49 U.S.C. Subtitle IX, Commercial Space Transportation, ch. 701—Commercial Space Launch Activities, 49 U.S.C. §§ 70101–70119 (1994).

* * * * *

Associate Administrator means the Associate Administrator for Commercial Space Transportation, Federal Aviation Administration, or any person designated by the Associate Administrator to exercise the authority or discharge the responsibilities of the Associate Administrator.

Federal launch range means an installation from which launches take place that is owned and operated by the government of the United States.

Hazardous materials means hazardous materials as defined in 49 CFR § 172.101.

Launch means to place or try to place a launch vehicle and any payload in a suborbital trajectory, in Earth orbit in outer space, or otherwise in outer space. The term launch includes the flight of a launch vehicle, and those hazardous pre-flight activities that are closely proximate in time to flight and are unique to space flight. For launches from a federal launch range, hazardous pre-flight activities begin with the arrival of a launch vehicle at a federal launch range.

Launch accident means 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 outside designated impact limit lines; or a fatality or serious injury (as defined in 49 CFR § 830.2) to any person who is not associated with the flight; or any damage estimated to exceed \$25,000 to property not associated with the flight where the property is not located at the launch site or designated recovery area.

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

Launch operator means a person who conducts or who will conduct the launch of a launch vehicle and any payload.

Launch site—means the location on Earth from which a launch takes place (as defined in a license the Secretary issues or transfers under this chapter) and necessary facilities located at the site.

Launch vehicle means a vehicle built to operate in, or place a payload in, outer space and a suborbital rocket.

Mishap means an unplanned event or series of events resulting in injury, occupational illness, or damage to or loss of equipment or property. Mishaps include, but are not limited to, launch accidents and launch incidents.

Office means the Associate Administrator for Commercial Space Transportation of the Federal Aviation Administration, U. S. Department of Transportation.

* * * * *

Payload means an object that a person undertakes to place in outer space by means of a launch vehicle, including components of the vehicle specifically designed or adapted for that object.

Person means an individual or an entity organized or existing under the laws of a state or country.

* * * * *

SUBCHAPTER C—LICENSING**PART 411—[REMOVED AND RESERVED]**

3. Part 411 is removed and reserved.

4. Part 413 is revised to read as follows:

PART 413—LICENSE APPLICATION PROCEDURES

Sec.

413.1 Scope.

413.3 Who must obtain a license.

413.5 Pre-application consultation.

413.7 Applications.

413.9 Confidentiality.

413.11 Acceptance of applications.

413.13 Complete application.

413.15 Review period.

413.17 Continuing accuracy of applications; supplemental information; modifications.

413.19 Issuance of a license.

413.21 Denial of a license application.

413.23 License renewal.

Authority: 49 U.S.C. 70101–70119.

§ 413.1 Scope.

This part prescribes the procedures applicable to all applications submitted under this chapter to conduct licensed activities. These procedures apply to applications for issuance of a license, transfer of an existing license and renewal of an existing license. More specific requirements applicable to obtaining a launch license or a site operator license are contained in parts 415 and 417 of this chapter, respectively.

§ 413.3 Who must obtain a license.

(a) Any person must obtain a launch license to launch a launch vehicle from the United States or a site operator license to operate a launch site within the United States.

(b) An individual who is a United States citizen or an entity organized or existing under the laws of the United States or any state must obtain a launch license to launch a launch vehicle outside of the United States or a site operator license to operate a launch site outside of the United States.

(c) A foreign entity in which a United States citizen has a controlling interest, as defined in § 401.5 of this chapter, must obtain a launch license to launch a launch vehicle from or a site operator license to operate a launch site within—

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

§ 413.5 Pre-application consultation.

Prospective applicants shall consult with the Office before submitting an application to discuss the application process and potential issues relevant to the Office's licensing decision. Early consultation enables the applicant to identify potential licensing issues at the planning stage when changes or modifications to a license application or to proposed licensed activities are less likely to result in significant delay or costs to the applicant.

§ 413.7 Applications.

(a) *Form*. An application must be in writing and filed in duplicate with the Federal Aviation Administration, Associate Administrator for Commercial Space Transportation, AST–200, Room 5402a, 400 Seventh Street, S.W., Washington, D.C. 20590. Attention: Licensing and Safety Division, Applications Review.

(b) *Administrative information*. The application must identify the following:

(1) The name and address of the applicant;

(2) The name, address, and telephone number of person(s) to whom inquiries and correspondence should be directed; and

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

(c) *Signature and certification of accuracy*. The application must be legibly signed, dated, and certified as true, complete, and accurate by one of the following:

(1) For a corporation: an officer authorized to act for the corporation in licensing matters.

(2) For a partnership or a sole proprietorship: a general partner or proprietor, respectively.

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

§ 413.9 Confidentiality.

(a) Any person furnishing information or data to the Office may request in writing that trade secrets or proprietary commercial or financial data be treated as confidential. The request must be made at the time the information or data is submitted, and state the period of time for which confidential treatment is desired.

(b) Information or data for which any person or agency requests confidentiality must be clearly marked with an identifying legend, such as "Proprietary Information," "Proprietary Commercial Information," "Trade Secret," or "Confidential Treatment Requested." Where this marking proves impracticable, a cover sheet containing the identifying legend must be securely attached to the compilation of information or data for which confidential treatment is requested.

(c) If a person requests that previously submitted information or data be treated confidentially, the Office will do so to the extent practicable in light of any prior distribution of the information or data.

(d) Information or data for which confidential treatment has been requested or information or data that qualifies for exemption under section 552(b)(4) of Title 5, United States Code, will not be disclosed unless the Associate Administrator determines that the withholding of the information or data is contrary to the public or national interest.

§ 413.11 Acceptance of applications.

The Office will initially screen an application to determine whether the application is sufficiently complete to enable the Office to initiate the reviews or evaluations required under any applicable part of this chapter. After completion of the initial screening, the Office notifies the applicant, in writing, of one of the following:

(a) The application is accepted and the Office will initiate the reviews or evaluations required for a licensing determination under this chapter; or

(b) The application is so incomplete or indefinite as to make initiation of the reviews or evaluations required for a

licensing determination under this chapter inappropriate, and the application is rejected. The notice will state the reason(s) for rejection and corrective actions necessary for the application to be accepted. The Office may return a rejected application to the applicant or may hold it pending additional submissions by the applicant.

§ 413.13 Complete application.

Acceptance by the Office of an application does not constitute a determination that the application is complete.

§ 413.15 Review period.

(a) *180-day review.* Unless otherwise specified in this chapter, the Office reviews and makes a determination on a license application within 180 days of receipt of an accepted 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 determination, or an issue exists that would affect the licensing determination, the Office notifies the applicant, in writing, and informs the applicant of any information required to complete the application. If further review is impracticable, the 180-day review period shall be tolled pending receipt by the Office of the requested information.

(c) *120-day notice.* If the Office has not made a licensing determination within 120 days of receipt of an accepted application, the Office informs an applicant, in writing, of any outstanding information needed to complete the reviews or evaluations required by this chapter for a licensing determination, or of any pending issues that would affect the licensing determination.

§ 413.17 Continuing accuracy of applications; supplemental information; modification.

(a) An applicant is responsible for the continuing accuracy and completeness of information furnished to the Office as part of a pending license application. If at any time information provided by an applicant as part of a license application is no longer accurate and complete in all respects, the applicant shall submit a statement furnishing the new or corrected information. As part of its submission, the applicant shall recertify the accuracy and completeness of the application in accordance with § 413.7. An applicant's failure to comply with any of the requirements set forth in this paragraph is a sufficient basis for denial of a license application.

(b) An applicant may modify or supplement a license application at any time prior to issuance or transfer of a license.

(c) Willful false statements made in applications and documents relating to applications or licenses are punishable by fine and imprisonment under section 1001 of Title 18, United States Code, and by appropriate administrative sanctions in accordance with part 405 of this chapter.

§ 413.19 Issuance of a license.

After the Office completes its reviews and issues the approvals and determinations required by this chapter for a license, the Office issues a license to the applicant in accordance with this chapter.

§ 413.21 Denial of a license application.

(a) The Office informs a license applicant, in writing, if its application has been denied and states the reasons for denial.

(b) An applicant whose license application is denied may do either of the following:

(1) Attempt to correct any deficiencies identified by the Office and request reconsideration of the revised application. The Office has 60 days or the number of days remaining in the 180-day review period, whichever is greater, within which to reconsider its licensing determination; or

(2) Request a hearing in accordance with the applicable rules in part 406 of this chapter, for the purpose of showing why the application should not be denied.

(c) An applicant whose license application is denied after reconsideration under paragraph (b)(1) of this section may request a hearing in accordance with paragraph (b)(2) of this section.

§ 413.23 License renewal.

(a) *Eligibility.* A holder of a launch operator or site operator license may apply to renew the license by submitting to the Office a written application for renewal of the license at least 90 days before the expiration date of the license.

(b) *Application.* (1) A license renewal application shall 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 any amendment to that license.

(3) The applicant must describe any proposed changes in its conduct of

licensed activities and provide any additional clarifying information required by the Office.

(c) *Review of application.* The Office conducts the reviews required under this chapter for a license to determine whether the applicant's license may be renewed for an additional term. The Office may incorporate by reference any findings that are part of the record for the expiring license.

(d) *Grant of license renewal.* After completion by the Office of the reviews required by this chapter for a license and issuance of the requisite approvals and determinations, the Office issues an order amending the expiration date of the license. The Office 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 renewal.* The Office informs the licensee, in writing, if the licensee's application for renewal has been denied and states the reasons for denial. A licensee whose application for renewal is denied may follow the procedures set forth in § 413.21 of this part.

PART 415—LAUNCH LICENSES

5. The authority citation for part 415 is revised to read as follows:

Authority: 49 U.S.C. 70101–70119.

6. In part 415, subpart D is redesignated as subpart G.

7. Sections 415.31 and 415.33 are redesignated as sections 415.101 and 415.103, respectively.

8. In part 415, subparts A through C are revised and new subparts D through F are proposed to be added to read as follows:

Subpart A—General

Sec.

415.1 Scope.

415.3 Types of launch licenses.

415.5 Policy and safety approvals.

415.7 Payload determination.

415.9 Issuance of a launch license.

415.11 Additional license terms and conditions.

415.13 Transfer of a launch license.

415.15 Rights not conferred by launch license.

415.16–415.20 [Reserved]

Subpart B—Policy Review and Approval

415.21 General.

415.23 Policy review.

415.25 Application requirements for policy review.

415.27 Denial of policy approval.

415.28–415.30 [Reserved]

Subpart C—Safety Review and Approval for Launch From a Federal Launch Range

415.31 General.

415.33 Safety organization.

415.35 Acceptable flight risk.

415.37 Launch safety design and operations.

415.39 Communications plan.

415.41 Accident investigation plan (AIP).

415.43 Denial of safety approval.

415.44–415.50 [Reserved]

Subpart D—Payload Review and Determination

415.51 General.

415.53 Payloads not subject to review.

415.55 Classes of payloads.

415.57 Payload review.

415.59 Information requirements for payload review.

415.61 Issuance of payload determination.

415.63 Incorporation of payload determination in license application.

415.64–415.70 [Reserved]

Subpart E—Post-Licensing Requirements—Launch License Terms and Conditions

415.71 Public safety responsibility.

415.73 Continuing accuracy of license application; application for amendment.

415.75 Agreement(s) with federal launch range.

415.77 Records.

415.79 Launch reporting requirements.

415.81 Registration of space objects.

415.83 Financial responsibility requirements.

415.85 Compliance monitoring.

415.86–515.90 [Reserved]

Subpart F—Safety Review and Approval for Launch From a Launch Site Not Operated by a Federal Launch Range

415.91 General.

415.93 Denial of safety approval.

415.94–415.100 [Reserved]

Authority: 49 U.S.C. 70101–70119.

Subpart A—General

§ 415.1 Scope.

This part prescribes requirements for obtaining a launch license and post-licensing requirements with which a licensee shall comply to remain licensed. Requirements for preparing a license application are contained in part 413 of this subchapter.

§ 415.3 Types of launch licenses.

(a) *Launch-specific license.* A launch-specific license authorizes a licensee to conduct one or more launches, having the same launch parameters, of one type of launch vehicle from one launch site. The license identifies, by name or mission, each launch authorized under the license. A licensee's authorization to launch terminates upon completion of all launches authorized by the license or the expiration date stated in the license, whichever occurs first.

(b) *Launch operator license.* A launch operator license authorizes a licensee to conduct launches from one launch site, within a range of launch parameters, of launch vehicles from the same family of vehicles transporting specified classes of payloads. A launch operator license

remains in effect for five years from the date of issuance.

§ 415.5 Policy and safety approvals.

To obtain a launch license, an applicant must obtain policy and safety approvals from the Office. Requirements for obtaining these approvals are contained in subparts B and C of this part. Only a launch license applicant may apply for the approvals, and may apply for either approval separately and in advance of submitting a complete license application, using the application procedures contained in part 413 of this subchapter.

§ 415.7 Payload determination.

A payload determination is required for a launch license unless the proposed payload is exempt from payload review under § 415.53 of this part. The Office conducts a payload review, as described in subpart D of this part, to make the determination. Either a launch license applicant or a payload owner or operator may request a review of its proposed payload using the application procedures contained in part 413 of this subchapter. Upon receipt of an application, the Office may conduct a payload review independently of a launch license application.

§ 415.9 Issuance of a launch license.

(a) The Office issues a launch license to an applicant who has obtained all approvals and determinations required under this chapter for a license.

(b) A launch license authorizes a licensee to conduct a commercial space launch or launches in accordance with the representations contained in the licensee's application, subject to the licensee's compliance with terms and conditions contained in license orders accompanying the license, including financial responsibility requirements.

§ 415.11 Additional license terms and conditions.

The Office may amend a launch license at any time by modifying or adding license terms and conditions to ensure compliance with the Act and regulations.

§ 415.13 Transfer of a launch license.

(a) Only the Office may transfer a launch license.

(b) An applicant for transfer of a launch license shall submit a license application in accordance with part 413 of this subchapter and shall meet the requirements of part 415 of this subchapter. The Office will transfer a license to an applicant who has obtained all of the approvals and determinations required under this

chapter for a license. In conducting its reviews and issuing approvals and determinations, the Office may incorporate by reference any findings made part of the record to support the initial licensing determination. The Office may amend a license to reflect any changes necessary as a result of a license transfer.

§ 415.15 Rights not conferred by launch license.

Issuance of a launch license does not relieve a licensee of its obligation to comply with other applicable requirements of law or regulations that may apply to its activities, nor does issuance confer any proprietary, property or exclusive right in the use of any federal launch range or related facilities, airspace, or outer space.

§§ 415.16–415.20 [Reserved]

Subpart B—Policy Review and Approval

§ 415.21 General.

The Office issues a policy approval to a license applicant unless the Office determines that a proposed launch would jeopardize U.S. national security or foreign policy interests, or international obligations of the United States. A policy approval is part of the licensing record on which the Office's licensing determination is based.

§ 415.23 Policy review.

(a) The Office reviews a license application to determine whether it presents any issues affecting U.S. national security or foreign policy interests, or international obligations of the United States.

(b) *Interagency consultation.* (1) The Office consults with the Department of Defense to determine whether a license application presents any issues affecting U.S. national security.

(2) The Office consults with the Department of State to determine whether a license application presents any issues affecting U.S. foreign policy interests or international obligations.

(3) The Office consults with other federal agencies, including the National Aeronautics and Space Administration, authorized to address issues identified under paragraph (a) of this section, associated with an applicant's launch proposal.

(c) The Office advises an applicant, in writing, of any issue raised during a policy review that would impede issuance of a policy approval. The applicant may respond, in writing, or revise its license application.

§ 415.25 Application requirements for policy review.

In its launch license application, an applicant shall—

(a) Identify the model and configuration of any launch vehicle(s) proposed for launch by the applicant.

(b) Identify structural, pneumatic, propellant, propulsion, electrical and avionics systems used in the launch vehicle and all propellants.

(c) Identify 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.

(d) Identify proposed vehicle flight profile(s), including:

(1) Launch site;

(2) Flight azimuths, trajectories, and associated ground tracks and instantaneous impact points;

(3) Sequence of planned events or maneuvers during flight;

(4) Range of nominal impact areas for all spent motors and other discarded mission hardware, within three standard deviations of the mean impact point (a 3-sigma footprint); and

(5) For orbital missions, the range of intermediate and final orbits of vehicle upper stages, and their estimated orbital lifetimes.

§ 415.27 Denial of policy approval.

The Office notifies an applicant, in writing, if it has denied policy approval for a license application. The notice states the reasons for the Office's determination. The applicant may respond to the reasons for the determination and reapply for policy approval.

§§ 415.28–415.30 [Reserved]

Subpart C—Safety Review and Approval for Launch From a Federal Launch Range

§ 415.31 General.

(a) The Office conducts a safety review to determine whether an applicant is capable of launching a launch vehicle and its payload without jeopardizing public health and safety and safety of property. The Office issues a safety approval to a license applicant proposing to launch from a federal launch range if the applicant satisfies the requirements of this subpart and has contracted with the federal launch range for the provision of safety-related launch services and property, as long as

those launch services and the proposed use of launch property are within the federal launch range's experience. The Office evaluates on an individual basis all other safety-related launch services and property associated with an applicant's proposal. A safety approval is part of the licensing record on which the Office's licensing determination is based.

(b) The Office advises an applicant, in writing, of any issue raised during a safety review that would impede issuance of a safety approval. The applicant may respond, in writing, or revise its license application.

§ 415.33 Safety organization.

(a) An applicant shall maintain a safety organization and document it by identifying lines of communication and approval authority for all launch safety decisions. Lines of communication, both within the applicant's organization and between the applicant and a federal launch range, shall be employed to ensure that personnel perform launch safety operations in accordance with range safety requirements and with plans and procedures required by this subpart. Approval authority shall be employed to ensure compliance with range safety requirements and with plans and procedures required by this subpart.

(b) *Safety official.* An applicant shall identify a qualified safety official authorized to examine all aspects of the applicant's launch safety operations and to monitor independently personnel compliance with the applicant's safety policies and procedures. The safety official shall report directly to the person responsible for an applicant's licensed launches, who shall ensure that all of the safety official's concerns are addressed prior to launch.

§ 415.35 Acceptable flight risk.

(a) *Flight risk through orbital insertion.* Acceptable flight risk through orbital insertion is measured in terms of the probability of occurrence and the expected average number of casualties (E_c) to the collective members of the public for any one launch. To obtain safety approval, the risk level associated with an applicant's launch proposal shall not exceed a collective risk of 30 casualties in one million launches ($E_c \leq 30 \times 10^{-6}$).

(b) *Flight risks following orbital insertion.* An applicant's launch proposal shall ensure that for all vehicle stages or components that reach earth orbit—

(1) There is no unplanned physical contact between the vehicle or its

components and the payload after payload separation; and

(2) Debris generation will not result from the conversion of energy sources into energy that fragments the vehicle or its components. Energy sources include chemical (e.g., fuel), pressure (e.g., pneumatic), and kinetic (e.g., gyroscopes) energy.

(c) *Hazard analysis and risk assessment.* An applicant shall submit an analysis assessing risks to public health and safety and safety of property associated with nominal and non-nominal flight under its launch proposal. The methodology used shall ensure that all flight hazards are identified and risks to public health and safety and safety of property are assessed.

§ 415.37 Launch safety design and operations.

(a) A launch vehicle, including its safety systems, shall be designed to ensure that flight risks satisfy the criteria set forth in § 415.35 of this part. An applicant shall identify and describe the following:

(1) Launch vehicle structure, including physical dimensions and weight;

(2) Hazardous and safety critical systems, including propulsion systems; and

(3) Drawings and schematics for each system identified under paragraph (a)(2) of this section.

(b) A launch vehicle shall be operated in a manner that ensures that flight risks satisfy the criteria set forth in § 415.35 of this part. An applicant shall identify all launch operations and procedures that must be performed to ensure acceptable flight risks.

(c) *Flight readiness requirements.* An applicant shall designate an individual responsible for flight readiness. The applicant shall submit the following flight readiness procedures for verifying readiness for safe flight:

(1) Launch readiness review procedures involving the applicant's flight safety personnel and federal launch range personnel involved in the launch. The procedures shall ensure a launch readiness review is conducted during which the individual designated under paragraph (c) of this section is provided with the following information to make a judgement as to flight readiness:

(i) Flight-readiness of safety-related launch property and services to be provided by a federal launch range;

(ii) Flight-readiness of launch vehicle and payload;

(iii) Flight-readiness of flight safety systems;

(iv) Mission rules and launch constraints;

(v) Abort, hold and recycle procedures;

(vi) Results of dress rehearsals and simulations conducted in accordance with paragraph (c)(4) of this section;

(vii) Unresolved safety issues as of the launch readiness review and plans for addressing and resolving them; and

(viii) Any additional safety information required by the individual designated under paragraph (c) of this section to determine flight readiness.

(2) Procedures that ensure mission constraints, rules and abort procedures are listed and consolidated in a safety directive or notebook approved by licensee flight safety and federal launch range personnel;

(3) Procedures that ensure currency and consistency of licensee and federal launch range countdown checklists;

(4) Dress rehearsal procedures that—

(i) Ensure crew readiness under nominal and non-nominal flight conditions;

(ii) Contain criteria for determining whether to dispense with one or more dress rehearsals; and

(iii) Verify currency and consistency of licensee and federal launch range countdown checklists.

(5) Procedures for ensuring the licensee's flight safety personnel adhere to federal launch range crew rest rules.

§ 415.39 Communications plan.

(a) An applicant shall submit a communications plan providing licensee and federal launch range personnel communications procedures during countdown and flight. Effective issuance and communication of safety-critical information during countdown shall include hold/resume, go/no go and abort commands by licensee and federal launch range personnel during countdown. The communications plan shall describe the authority of licensee and federal launch range personnel, by individual or position title, to issue these commands. The communications plan shall also ensure that—

(1) Communication networks are assigned so that personnel identified under paragraph (a) of this section have direct access to real-time safety-critical information required for issuing hold/resume, go/no go and abort decisions and commands;

(2) Personnel identified under paragraph (a) of this section monitor common intercom channel(s) during countdown and flight; and

(3) A protocol is established for utilizing clearly defined radio telephone communications terminology.

(b) An applicant shall submit procedures that ensure that licensee and

federal launch range personnel receive a copy of the communications plan and that the federal launch range concurs in the communications plan.

§ 415.41 Accident investigation plan (AIP).

(a) An applicant shall submit an accident investigation plan (AIP) containing the applicant's procedures for reporting and responding to launch accidents, launch incidents, or other mishaps, as defined in § 401.5 of this chapter. The AIP shall be signed by an individual authorized to sign and certify the application in accordance with § 413.7(c) of this chapter, and the safety official designated under § 415.33(b) of this subpart.

(b) *Reporting requirements.* An AIP shall provide for—

(1) Immediate notification to the Federal Aviation Administration (FAA) Operations Center in case of an event identified in paragraph (a) of this section.

(2) Submission of a written preliminary report in the event of a launch accident or launch incident, as defined in § 401.5 of this chapter, within five days of the event. The report shall identify the event as either a launch accident or launch incident, and shall include the following information:

(i) Date and time of occurrence;

(ii) Description of event;

(iii) Location of launch;

(iv) Launch vehicle;

(v) Payload(s), if applicable;

(vi) Vehicle impact points outside designated impact lines, if applicable;

(vii) Number and general description of any injuries;

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

(ix) Identification of hazardous materials, as defined in § 401.5 of this chapter, involved in the event, whether on the launch vehicle, payload, or on the ground;

(x) Action taken by any person to contain the consequences of the event; and

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

(c) *Response plan.* An AIP shall contain procedures that—

(1) Ensure the consequences of a launch accident, launch incident or other mishap are contained and minimized;

(2) Ensure data and physical evidence are preserved;

(3) Require the licensee to report to and cooperate with Office or National Transportation Safety Board (NTSB) investigations and designate one or more points of contact for the Office or NTSB; and

(4) Require the licensee to identify and adopt preventive measures for avoiding recurrence of the event.

(d) *Investigation plan.* An AIP shall contain—

- (1) Procedures for investigating the cause of a launch accident, launch incident or other mishap;
- (2) Procedures for reporting investigation results to the Office; and
- (3) Delineated responsibilities, including reporting responsibilities for personnel assigned to conduct investigations and for any unrelated entities retained by the licensee to conduct or participate in investigations.

§ 415.43 Denial of safety approval.

The Office notifies an applicant, in writing, if it has denied safety approval for a license application. The notice states the reasons for the Office's determination. The applicant may respond to the reasons for the determination and reapply for safety approval.

§§ 415.44–415.50 [Reserved]

Subpart D—Payload Review and Determination

§ 415.51 General.

The Office reviews a payload proposed for launch to determine whether a license applicant or payload owner or operator has obtained all required licenses, authorization, and permits, unless the payload is exempt from review under § 415.53 of this subpart. If not otherwise exempt, the Office reviews a payload proposed for launch to determine whether its launch would jeopardize public health and safety, safety of property, U.S. national security or foreign policy interests, or international obligations of the United States. A payload determination is part of the licensing record on which the Office's licensing determination is based.

§ 415.53 Payloads not subject to review.

The Office does not review payloads that are—

- (a) Subject to regulation by the Federal Communications Commission (FCC) or the Department of Commerce, National Oceanic and Atmospheric Administration (NOAA); or
- (b) Owned or operated by the U.S. Government.

§ 415.55 Classes of payloads.

The Office may review and issue findings regarding a proposed class of payload, e.g., communications, remote sensing or navigation. However, each payload is subject to compliance monitoring by the Office before launch

to determine whether its launch would jeopardize public health and safety, safety of property, U.S. national security or foreign policy interests, or international obligations of the United States. The licensee is responsible for providing current information, in accordance with § 415.59, regarding a payload proposed for launch not later than 60 days before a scheduled launch.

§ 415.57 Payload review.

(a) *Timing.* A payload review may be conducted as part of a license application review or may be requested by a payload owner or operator in advance of or apart from a license application.

(b) *Interagency consultation.* The Office consults with other agencies to determine whether launch of a proposed payload would present any issues affecting public health and safety, safety of property, U.S. national security or foreign policy interests, or international obligations of the United States.

(1) The Office consults with the Department of Defense to determine whether launch of a proposed payload would present any issues affecting U.S. national security.

(2) The Office consults with the Department of State to determine whether launch of a proposed payload would present any issues affecting U.S. foreign policy interests or international obligations.

(3) The Office consults with other federal agencies, including the National Aeronautics and Space Administration, authorized to address issues identified under paragraph (b) of this section, associated with an applicant's launch proposal.

(c) The Office advises a person requesting a payload determination, in writing, of any issue raised during a payload review that would impede issuance of a license to launch that payload. The person requesting payload review may respond, in writing, or revise its application.

§ 415.59 Information requirements for payload review.

(a) A person requesting review of a particular payload or payload class shall identify the following:

- (1) Payload name;
- (2) Payload class;
- (3) Physical dimensions and weight of the payload;
- (4) Payload owner and operator, if different from the person requesting payload review;
- (5) Orbital parameters for parking, transfer and final orbits;
- (6) Hazardous materials, as defined in § 401.5 of this chapter, and radioactive materials, and the amounts of each;

(7) Intended payload operations during the life of the payload; and

(8) Delivery point in flight at which the payload will no longer be under the licensee's control.

(b) [Reserved]

§ 415.61 Issuance of payload determination.

(a) The Office issues a favorable payload determination unless it determines that launch of the proposed payload would jeopardize public health and safety, safety of property, U.S. national security or foreign policy interests, or international obligations of the United States. The Office advises any person who has requested a payload review of its determination, in writing. The notice states the reasons for the determination in the event of an unfavorable determination.

(b) Any person issued an unfavorable payload determination may respond to the reasons for the determination and request another payload review.

§ 415.63 Incorporation of payload determination in license application.

A favorable payload determination issued for a payload or class of payload may be included by a license applicant as part of its application. However, any change in information provided under § 415.59 of this subpart must be reported in accordance with § 413.15 of this chapter. The Office determines whether a favorable payload determination remains valid in light of reported changes and may conduct an additional payload review.

§ 415.64–415.70 [Reserved]

Subpart E—Post-Licensing Requirements—Launch License Terms and Conditions

§ 415.71 Public safety responsibility.

A launch licensee is responsible for ensuring the safe conduct of a licensed launch and for ensuring that public safety and safety of property are protected at all times during the conduct of a licensed launch.

§ 415.73 Continuing accuracy of license application; application for amendment.

(a) A launch licensee is responsible for the continuing accuracy of representations contained in its application for the entire term of the license. A launch licensee must conduct a licensed launch and carry out launch safety procedures in accordance with its application. A licensee's failure to comply with the requirements of this paragraph is sufficient basis for revocation of a license.

(b) After a launch license has been issued, a licensee must apply to the Office to amend the license if:

(1) The launch licensee proposes to conduct a launch or carry out a launch safety procedure or operation in a manner that is not authorized by the license; or

(2) Any representation contained in the license application that is material to public health and safety or safety of property is no longer accurate and complete or does not reflect the launch licensee's procedures governing the actual conduct of a launch. A change is material to public health and safety or safety of property if it alters or affects the licensee's launch plans or procedures submitted in accordance with subpart D of this part, class of payload, orbital destination, safety requirements, type of launch vehicle, flight path, launch site, or any safety system, policy, procedure, requirement, criteria or standard.

(c) An application to amend a launch license shall be prepared and submitted in accordance with part 413 of this chapter. The launch licensee shall indicate any part of its license or license application that would be changed or affected by a proposed amendment.

(d) The Office reviews approvals and determinations required by this chapter to determine whether they remain valid in light of the proposed amendment. The Office approves an amendment that satisfies the requirements set forth in this part.

(e) Upon approval of an amendment, the Office issues either a written approval to the launch licensee or a license order amending the license if a stated term or condition of the license is changed, added or deleted. A written approval has the full force and effect of a license order amendment and is part of the licensing record.

§ 415.75 Agreement(s) with federal launch range.

For a license to launch from a federal launch range, prior to conducting a licensed launch, a launch licensee or applicant shall enter into an agreement(s) with a federal launch range providing for access to and use of U.S. Government property and services required to support licensed launch from the facility and for public safety related operations and support. The agreement(s) shall be in effect for the term of the license. A launch licensee shall comply with any requirements of the agreement(s) that may affect public safety and safety of property during the conduct of a licensed launch, including flight safety procedures and requirements.

§ 415.77 Records.

(a) A launch licensee shall maintain all records, data and other material necessary to verify that licensed launches are conducted in accordance with representations contained in the licensee's application. A launch licensee shall retain records for three years after completion of all launches conducted under the license.

(b) In the event of a launch accident or launch incident, as defined in § 405.1 of this chapter, a launch licensee shall preserve all records related to the event. Records shall be retained until completion of any federal investigation and the Office advises the licensee that the records need not be retained. The licensee shall make available to federal officials for inspection and copying all records required to be maintained under the regulations.

§ 415.79 Launch reporting requirements.

(a) Not later than 60 days before each launch conducted under a launch operator license, a licensee shall provide the following launch-specific information:

(1) Payload information in accordance with § 415.59 of this part;

(2) Flight information, including the launch vehicle, planned flight path, including staging and impact locations, and on-orbit activity of the launch vehicle including payload deliver point(s); and

(3) Mission specific launch waivers, approved or pending, from a federal launch range from which the launch will take place, that are unique to the launch and may affect public safety.

(b) Not later than 15 days before each licensed launch a licensee shall submit a completed Department of Transportation/U.S. Space Command (DOT/USSPACECOM) Launch Notification Form.

(c) A launch licensee shall report a launch accident, launch incident, or other mishap immediately to the Federal Aviation Administration (FAA) Operations Center and provide a written preliminary report in the event of a launch accident or launch incident, in accordance with the accident investigation plan (AIP) submitted as part of its license application under § 415.41 of this part.

§ 415.81 Registration of space objects.

(a) In accordance with Article IV of the 1975 Convention on Registration of Objected Launched into Outer Space, each licensee shall register with the Office all objects placed in space by a licensed launch, including a launch vehicle and any components, except:

(1) Objects owned and registered by the U.S. Government; and

(2) Objects owned by a foreign entity. Registration of objects owned by a foreign entity is the responsibility of the foreign entity.

(b) For each object that must be registered in accordance with this section, not later than thirty (30) days following the conduct of a licensed launch a licensee shall submit the following information:

(1) The international designator of the space object(s);

(2) Date and location of launch;

(3) General function of the space object; and

(4) Basic final orbital parameters, including:

(i) Nodal period;

(ii) Inclination;

(iii) Apogee; and

(iv) Perigee.

§ 415.83 Financial responsibility requirements.

A launch licensee shall comply with financial responsibility requirements specified in a license or license order.

§ 415.85 Compliance monitoring.

A launch licensee shall allow access by and cooperate with federal officers or employees or other individuals authorized by the Office to observe any activities of the licensee, or of the licensee's contractor or subcontractors, associated with the conduct of a licensed launch.

§ 415.86–415.90 [Reserved]

Subpart F—Safety Review and Approval for Launch From a Launch Site not Operated by a Federal Launch Range

§ 415.91 General.

The Office evaluates on an individual basis the safety-related elements of an applicant's proposal to launch a launch vehicle from a launch site not operated by a federal launch range. The Office issues a safety approval to a license applicant proposing to launch from a launch site not operated by a federal launch range whose launch proposal satisfies the criteria for acceptable flight risk set forth in subpart C of this part. A safety approval is part of the licensing record on which the Office's licensing determination is based.

§ 415.93 Denial of safety approval.

The Office notifies an applicant, in writing, if it has denied safety approval for a license application. The notice states the reasons for the Office's determination. The applicant may respond to the reasons for the

determination and reapply for safety approval.

§§ 415.94—415.100 [Reserved]

9. Subchapter C of Chapter III, Title 14, Code of Federal Regulations, would be amended by adding a new part 417 to read as follows:

PART 417—SITE OPERATOR LICENSE

Sec.

417.101 General.

417.103 Issuance of a site operator license.

417.105 Denial of a site operator license.

Authority: 49 U.S.C. 70101–70119.

§ 417.101 General.

The Office evaluates on an individual basis an applicant's proposal to operate a launch site.

§ 417.103 Issuance of a site operator license.

(a) The Office issues a license to a license applicant proposing to operate a launch site whose operation does not jeopardize public health and safety, safety of property, U.S. national security or foreign policy interests, or international obligations of the United States.

(b) A site operator license authorizes a licensee to operate a launch site in accordance with the representations contained in the licensee's application, subject to the licensee's compliance with terms and condition contained in license orders accompanying the license.

§ 417.105 Denial of a site operator license.

The Office notifies an applicant, in writing, if it has denied a license application. The notice states the reasons for the Office's determination. The applicant may respond to the reasons for the determination and reapply for a license.

Issued in Washington, DC, this 26th day of February 1997.

Patricia G. Smith,

*Acting Associate Administrator for
Commercial Space Transportation.*

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