LEGAL ASPECTS OF PRIVATE LAUNCH SERVICES

IN THE UNITED STATES

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To my parents, whose constant support, devotion and faith offered me the fascinating opportunity to do the studies I believed in as a challenge for the times to come.

PREFACE

For the completion of this thesis, I owe many thanks. I wish to thank the Institute of Air and Space Law and professor Nicolas Mateesco Matte for their support and teaching, Professor Michael Milde for his motivating supervision. I also wish to express my thanks to P.D.Nesgos, D.Bunker and Professor Ram Jakhu, who provided me with precious advice and practitionners' points of view. Finally, many thanks to Vassilis for his constant support.

Valérie KAYSER. Paris, March 1990.

ABSTRACT

The last decade has witnessed the development of a private launch industry. Under international space law, in particular the Outer Space Treaty of 1967, States shall supervise and authorize the activities of their nationals, including private launch companies, in Outer Space. In the United States, a substantial set of regulations has been elaborated to exercise this control over the activities of the private launch industry. This thesis analyzes, in a first chapter, the evolution which led to these regulations. The Commercial Space Launch Act of 1984 and the subsequent regulations issued by the Office of Commercial Space Transportation, regarding the licensing process are dealt with in the second chapter. The third chapter examines the most important practical legal issue relating to private launch services, namely liability and insurance.

RESUME

Les dix dernières années ont vu se développer l'industrie privée de lancements. Conformément au droit international de l'espace, en particulier au Traité de l'Espace de 1967, les Etats ont le devoir de surveiller et autoriser les activités de leurs nationaux, dont les compagnies privées de lancement, dans l'espace. Aux Etats-Unis, un ensemble de règles a été mis en place afin d'assurer l'exercice du contrôle des activités privées de lancements. La présente thèse analyse, dans un premier chapitre, l'évolution qui a conduit à élaborer ces règles. La Loi sur les Lancements, de 1984, et les règlementations subséquentes de l'"Office of Commercial Space Transportation", sont examinées dnas un second chapitre. Le troisième chapitre traite de la question juridique dont la portée pratique est probablement la plus importante en matière de lancements privés, à savoir celle de la responsabilité et de l'assurance.

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INTRODUCTION

"Une détonation épouvantable, inouïe, surhumaine, dont rien ne saurait donner une idée, ni les éclats de la foudre, ni le fracas des éruptions, se produisit instantanément. Une immense gerbe de feu jaillit des entrailles du sol comme d'un cratère. La terre se souleva, et c'est à peine si quelques personnes purent un instant entrevoir le projectile fendant victorieusement l'air au milieu des vapeurs flamboyantes".

Jules VERNE. De la Terre à la Lune. 1865.

Human beings have always been attracted by boundless spaces, particularly by outer space, stars and planets. Since Antiquity, people have built rockets. However, this was not always to satisfy their curiosity about space surrounding us, but very often for military purposes[1]. This dual use of space technology (military/civilian) has always been true. Modern rocketry itself was borne out of military rocketry. In the modern space era, the efforts of the nations engaged in space programs were turned towards research, which was, in fact, the fundamental aim of space activities. Then, these activities rapidly moved to military and civilian applications. The technology of space communications and Earth observation showed rapidly the tremendous opportunities that space activities could offer, not only to States or international organizations, but also to each and every single person on Earth. Then, from this understanding to the idea of commercializing space activities, the step was easy. The idea developed that these space applications could be put at the disposal of the public (enterprises, universities, laboratories, international organizations...). At that time, only States (and some international organizations such as ESA) were engaged in space activities. Of course, private enterprises were not excluded from the business. But they were not participating directly in those activities. "*Until recently, it was only the indirect participation which would be found in practice: States and State institutions had a monopoly of space activities and private industry was only linked to these activities as subcontractors or*

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[1] For a brief history of rocketry, see: *Atlas Universalis de l'Espace*, Encyclopedia Universalis, 1987.

sometimes as customers for the result. The exclusion of private industry from direct participation even in private economy countries, where normally private industry is the motor for technical progress and then transferring such progress into practical use for the community, was due to the enormous size of the technical means involved"[2]. But, more and more, space offered opportunities to private enterprises to directly participate to private enterprises in areas as various as material processing, communications satellites, navigation, remote-sensing and meteorology, launches, satellite retrieval and repair etc...[3]. There seemed to be some room for direct involvement of private enterprises in those activities.

Before going further on the involvement of private enterprises in space activities, a question must be answered: under the existing rules of space law, are private enterprises allowed to undertake such activities? The rules of space law were elaborated by States, in an era when they were the only ones involved in space activities, which were, at that time, mostly exploratory[4]. The Outer Space Treaty does not give an obvious affirmative answer to the question. On the contrary, it would seem to start from the opposite assumption. Indeed, the use of the expression

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[2] K.H.Bockstiegel, "Legal Implications of Commercial Space Activities" (1981) 24 *Colloquium*, 1, at 4.

[3] For an overview of business opportunities in space see: T. Logsdon, *Space Inc.* (New York: Crown Publishers, 1988).

[4] K.H.Böckstiegel, "Legal Implications of Space Activities", (1981) 24 *Colloquium*, 1, at 2 The author states: " In any case, there can be no doubt that the existing rules of space law have mainly been made on the background of and in the intention for exploratory space activities as they were executed by States during the last 20 years".

"for the benefit and in the interest of all countries"[5] seems to be incompatible with the activities of private enterprises. Some authors[6] consider, for instance, that this provision could allow private enterprises to undertake space activities, but under the condition that the profits of these activities go to all countries. But it is generally accepted that Art 1 of the Outer Space Treaty is general in character so that "it is obviously not possible to interpret the provisions as a ban for commercial use of outer space"[7]. Besides, the question of private commercial use of outer space was discussed during the drafting of the Outer Space Treaty. The Soviet Union considered, referring to Art 1 par 2 and par 3 of the Outer Space Treaty, that only States could benefit from the freedom of exploration and exploitation, fearing irresponsible attitudes on the part of private enterprises[8]. The United States supported the opposite opinion. Finally an agreement was reached in Art 6 of the Outer Space Treaty[9]. The freedom of exploration and exploitation of outer space

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5 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies. Jan 27, 1967. 18 UST 2410. TIAS 6347. 610 UNTS 205. Art 1 par 1

6 Marcoff, *Traité de droit international public de l'espace* (Fribourg: Editions Universitaires, 1973), 671.

7 K.H.Bockstiegel, "Legal Implications of Space Activities", (1981) 24 *Colloquium*, 1, at 6

8 UN Doc A/AC.105/C2 (1962) UN Doc A/5181 Annex 3 (1962). UN Doc A/AC.105/C2/C6 (1962).

9 Art 6: " States parties to the Treaty shall bear international responsibility for national activities in outer space, including the moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty. The activities of non-governmental entities, in outer space, including the moon and

is not limited to States but can also be exercised by non-governmental entities, including private enterprises[10]. This is also supported by Art 9 of the Treaty, which provides: "If a State Party to the Treaty has reason to believe that an activity or experiment planned by it *or its nationals*..."(emphasis added). The involvement in space activities of the nationals of a State, besides the State itself, is thus quite clearly recognized by the Treaty.

Another point should be noted with respect to the relations of private enterprises to space law. Once we have explained that private enterprises may engage in space activities, from a space law point of view, do they have to comply with the principles of space law? A positive answer must obviously be given. The Outer Space Treaty itself gives the answer to this question: "national activities", i.e. activities carried out by the nationals of a State, a private company being one of them through the link created by its citizenship[11], must be carried out "in conformity with the provisions set forth in the present Treaty". Consequently, private enterprises have to comply with all the principles of space law, particularly with

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other celestial bodies, shall require authorization and continuing supervision by the appropriate State party to the Treaty. When activities are carried on in outer space including the moon and other celestial bodies, by an international organization, responsibility for compliance with this Treaty shall be borne both by the international organization and by the States parties to the Treaty participating in such organization".

[10] On the legitimacy of non-governmental activities see: S.Gorove, "Implications of International Space Law for Private Enterprise", (1982) 7 *Annals of Air & Space Law*, 319, at 320.

[11] For further discussions about the notion of "national activities" see: H.Bittlinger, " Private Space Activities: Questions of International Responsibility" (1987) 30 *Colloquium*, 191, at 192, 193.

fundamental principles such as the application of international law to outer space, the application of the United Nations Charter to outer space, the obligation to carry out space activities for peaceful purposes, the non-appropriation principle, the freedom of exploration and use of outer space...

The beginning of the 1980's marked a strong optimism with respect to private involvement in outer space activities. Apart from material processing and experiments in outer space, three big fields were progressively opened to private enterprises: satellite communications, remote sensing, and launch services. This movement of "privatization" took place in Europe, at the beginning of the 1980's, and in United States, a little later.

In United States the landmark of this movement is the year 1984. Two important pieces of legislation were passed by Congress that year: the Land Remote-Sensing Commercialization Act[12] and the Commercial Space Launch Act[13]. These Acts officially marked the entry of private enterprises into the market of remote-sensing and launch services, respectively.

The purpose of this thesis is to examine the involvement of private enterprises in the business of launch services in the United States. Private companies which tried to enter this market, in the early 1980's had to face a situation of uncertainty as to which laws, rules or regulations would be likely to apply to their activities. They had to struggle to obtain launch clearances and go through endless

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[12] 15 USC 4201.

[13] 49 USC 2601.

series of consultations and applications with a number of the US Federal Agencies. Indeed, they can undertake space activities but the United States would be responsible for them towards other States as well as towards their own nationals. Thus, the Government has an interest in making sure that its international obligations are complied with. The Government finally understood the need for simplifying the launch licensing process and the first step was taken with the issuance of Executive Order 12465 on February 24, 1984. This evolution is analyzed chronologically (Chapter 1). The second step of the process was the Commercial Space Launch Act passed by Congress a few months later. The Office of Commercial Space Transportation was established to carry out the responsibilities given to the Secretary of Transportation by the Act. The OCST issued proposed and interim rules, received comments on those regulations, worked on improving them with the collaboration of the industry and the Federal agencies concerned as well as with the experience it acquired along the years. A set of final rules was eventually issued in 1988. The provisions of the Act and the regulations are analyzed, with a particular emphasis on the substantial provisions affecting the licensing procedure itself (Chapter 2). The United States is internationally liable for damage caused by its nationals. The Commercial Space Launch Act also provided for the opportunity given to enterprises to use Government launch facilities. Consequently, the question of liability is of tremendous importance. The companies were required to obtain insurance for damage to Government property as well as to third-parties with neither limits nor government indemnification. The industry stressed the

disadvantages brought by these provisions. Eventually some amendments were passed by Congress in 1988 to minimize these inconveniences. The provisions of the Commercial Space Launch Act, the conditions leading to the subsequent amendments and the provisions of the 1988 Amendments are analyzed chronologically (Chapter 3). As far as legislation and regulations are concerned, emphasis has been put on the study of primary sources, statutes, Congress reports and regulations issued by OCST, very little of literature having been devoted to extensive analysis of these provisions.

CHAPTER 1.- PRIVATIZATION OF SPACE LAUNCH SERVICES:NEEDS AND PROCESS.

" Space is not just science anymore, it is business. Corporate strategists who ignore space may be doing so at great jeopardy for their company's future".

Peter W.Wood & Peter M.Stark

"Made in Space"

Booz Allen & Hamilton, Outlook, 1985.

The next generation of billionaires is going to come from the business of space"

Arthur Dula.

Aerospace Counsel for Space Commercialization.

Dula, Sheilds, and Egbert, Houston, Texas.

I.- AN INITIATIVE OF PRIVATE ENTERPRISE.

(A).- A COMPARISON WITH EUROPE.

Privatization of commercial launch services took place in Europe earlier than in the United States. But it was done in a very different spirit. In Europe, the initiative came from governments. The States members of the European Space Agency (ESA) rapidly understood that the structure of ESA was too heavy for the management of the Ariane program[1]. They thought that a private entity would

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[1] On ESA see:
* M.Bourély, "Organisations à compétence territoriale. Organisations de l'espace", *Jurisclasseur Droit International*. Fasc 195.
* Manin, "Le nouveau droit de la coopération spatiale européenne: l'Agence Spatiale Européenne" (1974) *RTDE* 2/3.
* N.Jasentuliyana & R.Sk Lee, *Manual of Space Law* (New York: Oceana Publication, 1979). European Space Agency in Vol 2.
* M.Bourély, "L'Agence Spatiale Européenne", (1976) 1 *Annals of Air & Space Law*, 183.
* J.Chappez, "La création de l'Agence Spatiale Européenne", (1975) 21 *AFDI*,

perform this task better and would have a stronger position in the international competition. Consequently, the governments of the States members of ESA[2] decided, in a Declaration introduced by France on January 14,1980[3] to transfer the activities related to the ARIANE launcher to a private entity. This entity was eventually set up as an incorporated company under the laws of France, on March 26, 1980, and named ARIANESPACE[4]. This company is in charge of the management of the manufacture of the launcher, its commercialization, and the launch operations. The costs of further developments of the launcher are still being

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* *Convention for the Establishment of a European Space Agency.* Space Law: Selected Basic Documents, 2d Ed. 178. 331. European Space Agency Basic Texts. 4 Vol. Paris ESA.

[2] ESA was in charge of the development of the ARIANE launcher. See :
* M.Castello, *La Grande Aventure d'Ariane.*(Paris : Larousse,1987).
* M.Bourély, "Coopération internationale et droit de l'espace, l'exemple de la légende européenne", in *Aspects récents du droit de l'espace.*(Paris : Pedone,1988), 47.
* M.Bourély, " La production du lanceur Ariane",(1981) 6 *Annals of Air & Space Law* ,279.

[3] Declaration of Certain European Governments Relating to the Ariane Launcher Production Phase.(1981) 6 *Annals of Air & Space Law*, 723.

[4] On ARIANESPACE, see :
* M.Castello, *La Grande Aventure d'Ariane* (Paris : Larousse, 1987).
* J.Chappez, " Arianespace : première société de transport spatial", (1983) 110 *JDI*,695.
* J.Chappez, "Les systèmes de transport" in: *Aspects récents du droit de l'espace* (Paris, Pedone, 1988).
* G.C.Raclin, "Going to Work in Space: A Survey of Presently Available Launch Systems" in: *American Enterprise, the Law and the Commercial Use of Space*, National Legal Center for the Public Interest, 1986, 31-72, at 46 & ff.
* ARIANESPACE, *Arianespace, première société commerciale de transport spatial*, Public Relations Document.
* A.Souchier & P.Baudry, *Ariane* (Paris, Flammarion, 1986).

borne by governments[5]. Finally, it is important to keep in mind that a large part of the company's capital comes from public sources. Privatization was essentially a matter of legal technique. In the United States, the movement went the opposite way. The initiative came from some private enterprises willing to enter the market of commercial launch activities.

The first company to appear on the market of private commercial launches was *SPACE SERVICES INCORPORATED OF AMERICA* (SSI), a company incorporated under the laws of the State of Texas on September 17,1980. The object given to this company was to perform any lawful business for which corporations could be incorporated under the Texas Business Corporation Act. SSI's objectives were to:

1) demonstrate SSI's ability to fund, organize and develop a completely private launch capability;

2) develop a cooperative working relationship with relevant Federal agencies;

3) acquire operational experience;

4) develop a model private launch site;

5) predict the success of orbital operations based on suborbital performance;

6) compare the performance of Conestoga I to the design mission[6].

Consequently, when this company decided to develop, build and launch a

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[5] ESA is in charge of new developments related to the ARIANE type launcher.

[6] A.D.Webber, "Launching the Rocket Industry in the United States: Domestic Regulation of Private Expendable Launch Vehicles (1984) 2 *Journal of Air Law & Commerce*, 50. Citing Space Services of America, Conestoga I Mission Report 3 Mar, 1983. (Submitted to the FAA).

Commercial Expendable Launch Vehicle (ELV), it was necessary to check that this activity is lawful, while performed by a private company.

(B).- A CONSEQUENCE OF SPACE LAW : THE DUTY TO SEEK GOVERNMENTAL AUTHORIZATION TO LAUNCH PRIVATE ELV's.

As we have seen previously[7],international space law allows space activities to be operated by private companies. However, from the beginning of the discussions among States on this matter, a very important element was clear: private companies could be allowed to enter into such activities, under the condition of the control by the appropriate State. A Soviet document clearly expressed this opinion: " *The Soviet delegation considers it essential to point out that in this field it would be possible to consider the question of not excluding from the declaration the possibility of activity in outer space by private companies, on the condition that such activity would be subject to the control of the appropriate State, and the State would bear international responsibility for it*"[8].

This is what was finally embodied in Art 6 of the Outer Space Treaty[9]. Also,

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[7] See Introduction.

[8] UN Doc A/AC. 105/PV.22 (1966), 37.

[9] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space,including the Moon and Other Celestial Bodies. Jan 27,1967. 18 UST 2410; TIAS No 6347; 610 UNTS 205.
ART 6 : " States parties to the Treaty shall bear international responsibility for national activities in outer space, including the moon and other celestial bodies, whether such activities are carried on by governmental agencies or by

Art 8 of this treaty provides that a State Party which carries on its registry an object launched into space "*shall retain jurisdiction and control over such object*". As was previously noted[10], the Treaty does not make any distinction between the activities of a State and activities of this State's private enterprises. As noted by A.D.Webber[11]: " *Thus, the treaty clearly contemplates private space activities and mandates that States parties take responsibility for such activities, even if the State does not exercise any direct or indirect control over such activities*". Consequently, it is the responsibility of the United States to ensure compliance with the provisions of the Outer Space Treaty by private enterprises : principle of free exploration, use and exploitation of space by all, non-appropriation of space, peaceful use... As for the question of which State would bear this responsibility, the Outer Space Treaty, in its Art 6, uses the expression "*the appropriate State*", and Art 7 imposes liability on a State for space activities of its nationals. More precision is given in the Liability

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non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty. The activities of non-governmental entities, in outer space, including the moon and other celestial bodies, **shall require authorization and continuing supervision** by the appropriate State Party to the Treaty. When activities are carried on in outer space including the moon and other celestial bodies, by an international organization, responsibility for compliance with this Treaty shall be borne both by the international organization and by the States Parties to the Treaty participating in such organization".(emphasis provided).

[10] See Introduction.

[11] Allen Duane Webber, "Launching the Rocket Industry in the United States : Domestic Regulation of Private Expendable Launch Vehicles" (1984), *Journal of Air Law & Commerce*, 1, at 36.

Convention[12]: the State responsible for damage (as covered by the Convention) caused by the space object operated by the private enterprise is the "*launching State*" defined as "*a State which launches or procures the launching of a space object*", or " *a State from whose territory or facility a space object is launched*"[13]. The interpretation of the expressions "*launching State*" and "*appropriate State*" has been discussed. Thus, for Prof.Böckstiegel, the appropriate State can also be "*the State whose nationality the private enterprise has*"[14]. However, as M.Ritholz notes : " *If the State of nationality is presumed to have jurisdiction, several problems arise. The State of nationality of the PLV [Private Launch Venture] could be the State of incorporation, the State where its home office is located, or where its principal place of business is located. If more than one State is involved, conflicts over which State would have primary jurisdiction, for purposes of the 67 Treaty, would be manifold. No matter which State is obligated to exercise "authority and supervision' over the user or PLV, any activity in outer space by the user or PLV can be legitimized only by the willingness of a State party to assume responsibility for such "authorization and supervision". In order to adequately supervise any activity, the supervising State must be able to impose sanctions upon the entity in control of the space object after it is launched. That entity would be either the PLV or the user. Thus the location of the PLV or the user and the*

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[12] Convention on International Liability for Damage Caused by Space Objects. Adopted in UNGA Res 2777(XXVI). Nov 29,1971. Opened for signature March 29,1972. Entered into force October 9,1983.

[13] Liability Convention Art 1 c)i) and ii).

[14] K.H. Böckstiegel, " Legal Implications of Commercial Space Activities", (1981) 24 *Colloquium*, 1, at 12.

whereabouts of their respective assets are relevant to determining which State is "the appropriate State Party". As a general rule, a State may not exercise its enforcement jurisdiction on the territory of another State without the latter's consent. Thus, the State in which the PLV or the user or their respective assets are located should be the State Party obligated to "authorize and supervise" user or PLV activities"[15].

As for M.Webber, he writes : "*Thus, the United States is primarily liable under international law for purely private space vehicles that launch from the United States or its territorial waters*"[16].

This discussion illustrates the various interpretations given to the expressions "*appropriate State*" and "*launching State*"[17]. This may be a reason why, when legislation was elaborated to regulate private ELV activities, to be on the safe side, the scope of application of the legislation was decided to be made very wide[18].

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15 Andrew Ritholz, "International and Domestic Regulation of Private Launching Ventures" (1985) *Stanford Journal of International Law*, 135, at 142.

16 Webber, "Launching the Rocket Industry in the United States. Domestic Regulation of Private Expendable Launch Vehicles, (1984) *Journal of Air Law & Commerce*, 1, at 39.

17 For other points of view see: H.Bittlinger "Private Space Activities: Questions of International Responsibility" 1987, 30 Colloquium, 191-196; A Gorbiel, Outer Space in International Law, 31; E.W.Jenks, Space Law, 236, J.Kish, The Law of International Spaces, 137; I A.Casbafi, The Concept of State Jurisdiction in International Space Law, 122; S.Gorove, "Sovereignty and the Law of Outer Space Reexamined" 1977 *Annals of Air & Space Law*, 315; M.Menter, "Legal Responsibility for Outer Space Activities", (1983) 26 *Colloquium*, 122; H.L.Traa Engelman, "Problems of State Responsibility in International Space Law", (1983) 26 *Colloquium*, 141 M Howald, "Private Space Activities and National Legislation", (1989) 32 *Colloquium*, 344-347, at 345.

18 See Chapter 2.

The launching State is absolutely liable for damage caused by its space object on the surface of the earth and to aircraft in flight, and its liability is based on fault for damage caused elsewhere to another space object or to persons or property aboard it, these liabilities being subject to the exceptions provided in Art 7 of the Liability Convention[19]. The United States has ratified these instruments. However, this does not give it domestic authority to regulate the private space launch industry. Moreover, when giving its consent to the Outer Space Treaty, the Congress did not pass any legislation giving power to any agency to regulate this industry. Of course, Art 6 of the US Constitution provides that "*all Treaties made (...) under the Authority of the United States shall be the supreme law of the Land* ". But this would give domestic authority to the United States' Executive to regulate private launch industry only to the extent that the Outer Space Treaty, or part of it, is considered as self-executing, and as such does not require any implementing legislation. The

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[19] The Liability Convention does not apply to damage caused to a US national by a US space vehicle.Domestic law remedies must be used by the claimant. Strict liability seems to be very adequate in that case, launch activities being easily considered as ultra-hazardous. See Webber id note 16.
Two cases would support the strict liability action :
* Berg v.Reaction Motors Division, Thiokol Chemical Corp. 181 a. 2d 467 (1962,nj.sc). (Damage caused in the vicinity of a rocket site by the testing of rocket).
* Smith v.Lockheed Propulsion Co. 56 Cal Rptr 128 (1967, C.A) (Damage caused by firing of a rocket and consecutive seismic vibrations).
On liability for space activities see:
* *Space Activities and Emerging International Law*, Center for Research of Air & Space Law, Mc Gill University, 1984, 293 & ff.
* Christol, "International Liability for Damage Caused by Space Objects", (1980) 74 *Am J of Int'l Law*, 346, 359.
* G.Van Reeth, "The Launching State Should Indemnify all Participants in a Space Venture", International Bar Association, 22d Biennial Conference, Buenos Aires, 25-30 September 1988.

notion of self-executing treaty can be defined as follows : " *[a] self-executing treaty is one which furnishes by its own terms (or by reason of the existence of previously enacted statutes which can implement it) a rule of law for the executive branch of the Government, the courts, the States, or for private individuals. An executory, or non self-executing treaty, is one which explicitly or implicitly requires implementation by some executive or legislative agency, either Federal or State, before it can become a rule for the courts or for private individuals*"[20]. It is the role of the executive branch to decide whether a Treaty is self-executing, this determination being subject to further interpretation by the Courts[21].

It seems that the drafters of the Outer Space Treaty intended to make it self-executing, at least insofar as it imposes on States the continuous supervision of space activities undertaken by their nationals, which derives in a positive obligation to regulate these activities[22]. This conclusion comes from the very strong language of the Treaty in its Art 6 :

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[20] A.E Evans, "Some aspects of the Problem of Self-Executing Treaties" (1951) 45, *Proceedings Am Society Int'l L*, 66-68, quoted by P.D Nesgos DCL Thesis id note 21.

[21] On self-executing treaties see :
* Restatement (second) Foreign Relations Law . Parag 141 (1962).
* Evans, "Self Executing Treaties in the United States of America", (1953) 30 *Brit Y B Int'l L*, 178-185.
* Henry, "When is a Treaty Self Executing ?", (1979) 27 *Mich L Rev*, 776
* P.D Nesgos, *National Law and Commercial Activities in Outer Space*, DCL Thesis, Mc Gill University, Institute of Air & Space Law, 1983, 9.

[22] See for the same opinion : P.D Nesgos, DCL Thesis id note 21 , p 22 ff, p 203.
See for a different opinion : Arthur Dula, "Regulation of Private Commercial Space Activities" (1981) 24 *Colloquium*, 25, who considers that these provisions are not self-executing.

- "shall" bear international responsibility

- for "assuring" that private enterprises conduct their activities in conformity with the provisions of the Treaty;

- private activities "shall" require authorization and continuous supervision.

Moreover, when the United States ratified the Treaty, no implementing legislation was asked by the President. The Department of State itself, in the SSI procedure, behaved in a way which implied that it recognized the Outer Space Treaty as self-executing : while SSI was asking the DOS for an export permit, the DOS addressed other issues related to the launch, implying that it considered itself as having authority to regulate this field.

Finally, and more importantly, the United States cannot use the argument of the absence of domestic legislation to leave its international undertakings unfulfilled. First, under international law, the United States is responsible for the application of the treaties it ratified[23]. Moreover, the United States has not only a duty to make sure that private enterprises comply with the provisions of the treaties, but also an important interest in doing so: it would be held responsible, towards other States, for the possible damage caused by the activities of these enterprises, and, as such, it has an interest in authorizing the activities for which it considers acceptable

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[23] Vienna Convention on the Law of Treaties. Art 27. UN Doc A/Conf 39/27 (1969). (1969) *Int'l Legal Materials*, 679.
Art 27 states that "a party may not invoke the provisions of its internal law as justification for its failure to perform a treaty".

to bear this responsibility[24].

However, it is worth noting that, if the issue of the domestic authority of the US Executive to regulate private ELV's has been discussed theoretically, in practice companies which wanted to launch such vehicles did not challenge this authority and, from the beginning, sought licenses and authorizations.

(C).- AGENCIES HAVING A POSSIBLE INTEREST IN REGULATING PRIVATE LAUNCH ACTIVITIES.

Having concluded that the United States Government has authority to regulate these activities, the question arises as to which agencies are involved in the process of authorization. This is what SSI tried to find out when it decided to launch its first rocket.

As no legislation was passed by Congress, no agency was specifically granted any authority to regulate the activities of the private launch industry. Moreover, launches used to be operated by NASA, the Department of Defense and the Department of the Army, Navy and Air Force which were acting under their own regulations and under the authority of no other agency. But in view of the existing legislation at that time, the launch of a rocket was susceptible to fall within the

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[24] For developments about the authority and duty of the US Government to regulate private ELV's under domestic and international law, see : Allen Duane Webber, "Launching the Rocket Industry in the United States: Domestic Regulation of Private Expendable Launch Vehicles", *Journal of Air Law and Commerce*, 1, at 35.

competence of a number of administrations. The review of these agencies gives an idea of the situation as it used to be when the first private launch was initiated. It is intended to provide a historical perspective as to a very complicated process that was to be simplified by the Commercial Space Launch Act and the Office of Commercial Space Transportation[25].

Obviously, the ***Federal Aviation Administration*** was to be consulted. In fact it is the only agency having been granted some kind of authority regarding rocket launches. The *Federal Aviation Act of 1958*[26] grants the Secretary of Transportation the authority to develop plans and formulate policy regarding the use of navigable airspace[27]. The Secretary of Transportation can issue rules and regulations "for the prevention of collision(s) between aircraft ... and airborne objects", and, in general, to ensure the safety of aircraft. The legislator intended to give the FAA authority on spacecraft[28], as the Senate Committee explained : " *in order for the administrator of the new agency to properly discharge his responsibilities under the new act,*

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[25] The Commercial Space Launch Act, the Office of Commercial Space Transportation and the subsequent regulations will be dealt with in Chapter 2. However, we may already stress that much of the authority of the agencies further analyzed has now been supplanted by the Office of Commercial Space Transportation.

[26] 49 USC Parts 1301-1523 (1982).

[27] 49 USC Part 1348.

[28] Except public spacecraft. NASA or DOD spacecraft cannot be regulated by the FAA because the Congress did not give FAA regulatory powers with respect to public aircraft (or more exactly airborne objects).

particularly those in connection with the allocation of airspace, that his jurisdiction should extend not only to vehicles commonly considered as aircraft, but also during their flight through airspace, other vehicles such as rockets, missiles and other airborne objects"[29]. Moreover, it should be noted that FAA has some authority over spacecraft as a logical consequence of its authority over airspace: FAA has authority insofar as safety of air navigation is concerned. The FAA Chief Counsel expressed this view, saying: "*it seems entirely consistent with the intent of the FA Act not to apply the full panoply of our FAA regulations so long as we remain assured that safety of the US air-space will not be derogated*"[30]. In this view, the FAA issued regulations related to unmanned rockets, in 1962[31]. These regulations were not aimed at commercial launch vehicles but at model rockets. FAA recognized that this Federal Aviation Regulation (FAR) is the only regulation applicable to private expendable launch vehicles[32]. This regulation defines the term "*rocket*" as meaning "*an unmanned aircraft, whose flight in the air is derived from the thrust of ejected expanding gases generated in the engine from self contained fuels or propellants and is*

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[29] S.Rep. No.1811. 85th Cong, 2d Sess, 20 (1958).

[30] Letter from the FAA Chief Counsel to the NASA General Counsel, dated 11 March 1977. Quoted in P.D Nesgos, DCL Thesis, id note 21, p 176.

[31] 14 CFR Parts 101.21-101.25.Proposed in 1962, 27 Fed Reg S402 (1962). Enacted in 1963, 28 Fed Reg 306 (1963).Recodified in 1963, 28 Fed Reg 6722 (1963). Amended in 1974, 39 Fed Reg 22,252 (1974).

[32] For instance, in the Conestoga 1 case, when giving the exemption, the FAA did not invoke any other regulations.
In Re Space Services Inc, Regulating Doc No 22 7775 (Sept 1, 1982).

not dependent on the intake of outside substance. It includes any part which becomes separated during the operations"[33]. The FAR provides that no unmanned rocket may be operated :

- in a manner that creates a collision hazard with other aircraft;
- in controlled airspace;
- within five miles of the boundary of any airport;
- at any altitude where clouds or obscuring phenomena of more than five tenths coverage prevail;
- at any altitude where the horizontal visibility is less than five miles;
- into any cloud;
- within 1500 feet of any person or property that is not associated with the operation;
- between sunset and sunrise.[34]

Moreover, within twenty four to forty eight hours prior to the launch, the operator of the unmanned rocket must give certain safety information to the nearest FAA Air Traffic Control facility, these information including:

- the names and addresses of the operators;
- the number of rockets to be operated;
- the size and weight of each rocket;
- the maximum altitude to which each rocket will be operated;

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[33] 14 CFR Part 48.3 Civil Air Regulations.

[34] 14 CFR Part 101.23 (a)-(h).

- the location of the operation;

- the date, time and duration of the operation;

- any other pertinent information required by the air traffic control facility[35].

As unmanned rockets will interfere with controlled airspace, private companies operating them must obtain either a waiver or an exemption from the regulations[36]. The waiver is adapted when the company wants to operate only one flight (test flight) and this procedure is quite simple. In case the company wishes clearance for a series of launches, it must obtain an exemption. This procedure is more cumbersome because the exemption can be granted only in Washington DC, and the comments of the DOD, DOS and other agencies that have an interest in the use of airspace, must be obtained by the FAA[37].

For the launch of unmanned space vehicles, it is essential for purposes of guidance, tracking, possible destruction..., to use radio communications. Under the *Communications Act* of *1934*[38], nobody can operate or use a radio apparatus unless this person obtains a license pursuant to the Act[39]. This license is to be given by

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[35] 14 CFR Part 101.25.

[36] 14 CFR Part 11.71.

[37] On the role of FAA, see :
P.D Nesgos, DCL Thesis, id note 21,p 171.

[38] Federal Communications Act of 1934. 47 USC Parts 151-609.

[39] 47 USC Part 301.

the ***Federal Communications Commission***[40] even though there is no procedure directly applicable regarding communications involved in spacecraft launches. Consequently, private launch companies need to apply for this license with the FCC before launching. However, this seems to be quite easy because the radio systems used for these launches do not present exceptional characteristics that would need special attention of the FCC[41].

The ***Department of State***, as well, is interested in private launches. For it is in charge of foreign affairs, the DOS has to ensure compliance with treaties in force for the United States. As we have explained above[42], private launches will involve the liability of the United States towards another State in case of damage caused to the latter by the launch or, in general, by the non compliance of the company with the provisions of the treaties. Moreover, the United States has to provide the Secretary General of the United Nations with information concerning space objects launched by it[43]. In consequence:

- firstly, the DOS has an interest in checking that the proposed launches are

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[40] 47 USC Part 151.

[41] For a detailed description of the FCC regulations applicable at that time, see :
P.D Nesgos, DCL Thesis, id note 21, p 191 ff.

[42] See Chapter 1.I.(B).

[43] Convention on Registration of Objects Launched into Outer Space. Adopted in UNGA Res 3235 (XXIX), 12 Nov 1974, 28.1 UST 695(1976-7). Opened for signature 14 Jan 1975. Entered into force 15 Sept 1976.
ART III(1). ART II(1).

in conformity with the treaty obligations of the United States, ensuring launch safety and preventing liability of the United States;

- secondly, the DOS has an interest in concluding an agreement with the operator of the launch, providing for the indemnification of the United States, in case of its liability, either by insurance or any other means.

Another reason why the DOS is implicated in private launches is that rockets, launch vehicles, payloads, specifically designated associated equipment, and related technical data, are included on the "*Munition List*"[44] determined by the DOS. "*The List comprises a variety of categories of arms, ammunition and implements of war. Category IV, titled 'Launch Vehicles, Guided Missiles, Ballistic Missiles, Rockets, Torpedoes, Bombs and Mines' includes rockets (except meteorological sounding rockets), and launch vehicles, and apparatus, devices and materials for their operation*[45]*. Also included are missiles and space vehicle powerplant. Category VII of the Munitions List mentions spacecraft 'including manned and unmanned, active and passive satellites'. Category XI includes military space electronics. It is clear from the enumeration that the references to space-related equipment are phrased in such a manner as to comprise virtually any space-bound object or vehicle even if it has no defence or military purpose*"[46]. A license is required for the export of such items,

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[44] 22 CFR. 121.01.

[45] For the full contents of this Category IV see: Arthur Dula, "Private Sector Activities in Outer Space", (1985) 19 *International Lawyer*, 159, at 180 note 75.

[46] In : P.D Nesgos, DCL Thesis, id note 21,p 208-209.

under the *Arms Export Control Act*[47]. An "*export*" is defined as meaning "*the sending or taking out of the United States in any manner any article, equipment or technical data on the Munition List*"[48]. Consequently, in two cases a license would be needed:

- if the flight plan implies that the rocket will leave the territorial waters of the United States;
- if the rocket is to be transferred out of the US territory to international waters or to another State to be launched[49].

In connection with this question is the role of the ***Internal Revenue Service***. Under the *Gun Control Act of 1968*[50], importers, manufacturers, and dealers in firearms, destructive devices, and ammunition for destructive devices must register with:

- the Alcohol Tobacco and Firearms (ATF)
- the Internal Revenue Service (IRS).

They also have to do some payments to the IRS. The definition of 'destructive

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[47] Arms Export Control Act. 22 USC Parts 2751-2796.
Regulations: 22 CFR. 123.01.
On export controls see:
A.Dula, "Export Controls Affecting Space Operations", (1986) 51 *Journal of Air Law & Commerce*, 927, 944-947.
B.Brumberg, "Regulating Private Space Transportation" (1984) *Administrative Law Review*, 363-385, at 380.

[48] 22 CFR Part 121.19 (1984).

[49] On the role of DOS, see: P.D Nesgos, DCL Thesis, id note 21,p 202 ff.

[50] 18 USCA. 921.

devices" encompasses rockets[51].

NASA could also be seen as another agency having an interest in private launches. However, it seems that, from the regulatory point of view, NASA has no authority over private launches. The language of the *National Aeronautics and Space Act of 1958*[52] leads to this conclusion. Some provisions of the Act can be selected to show that private launch activities are not included in the mandate of NASA.

- "*The Congress further declares that such activities [aeronautical and space activities] shall be the responsibility of, and shall be directed by, a civilian agency exercising control over aeronautical and space activities sponsored by the United States(...)*"[53]

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[51] B.Brumberg, "Regulating Private Space Transportation",(1984) *Administrative Law Review*, 363-385, at 381.

[52] 42 USC Parts 2451-2477, 2481-2485.

[53] 42 USC 2451 Sect 102.(b)
On the interpretation of the word "*sponsored*",see:
* Arthur Dula, "Regulation of Private Commercial Space Activities" (1981) 24 *Colloquium*, 25-45, at 27.
* Allen Duane Webber, "Launching the Rocket Industry in the United States : Domestic Regulation of Private Expendable Launch Vehicles"(1984) *Journal of Air Law & Commerce*, 1-67, at 16.
* Case Forshan v. Harris, 100 S.Ct 978 (1980). It was ruled in this case that a private group which had received federal funds was not thereby turned into a federal entity for purposes of the Freedom of Information Act. "Grants of federal funds generally do not create a partnership or joint venture with the recipient, nor serve to convert the acts of the recipient from private acts to governmental acts absent extensive, detailed and virtually day to day supervision".
* B.Brumberg, "Regulating Private Space Transportation",(1984) *Administrative Law Review*, 363-385, at 378. In this author's view, since the United States ratified the space treaties, private space launches cannot occur without the United States' approval. Thus, they are impliedly "sponsored" by NASA.

- *"the term 'aeronautical and space activities' means (A) research into, and the solution of, problems of flight within and outside the earth's atmosphere; (B) the development, construction, testing and operation for research purposes of aeronautical and space vehicles; (C) (...) and (D) such other activities as may be required for the exploration of space(...)"*[54].

Obviously, the language used by the Act does not give NASA authority to regulate private launches. Indeed, these activities are not "sponsored" by the United States. Moreover, usually they are not for research or exploration purposes, but for purely commercial purposes. Research and exploration of space are still mostly conducted by States. Moreover, NASA expressed the will not to be involved in regulating private ELV's[55].

However, because of its technical experience, NASA plays an important role:

- in cooperating with other agencies which may need technical advice to exercise their regulatory role and issue the necessary licenses, authorizations and exemptions.

- when a company uses NASA's equipment or facilities. In that case, as owner and operator of the facilities, NASA can impose, on a purely contractual basis, some obligations on the company such as obtaining

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[54] 42 USC 2452. Sect 103 (1).

[55] Space Commercialization Hearings Before the Subcommittee on Space Science and Applications of the House Comm. on Science and Technology. 98th Cong. 1st Sess 65 (1983), at 36 (Statement of M.Beggs).

insurance to cover any liability of NASA[56].

Pursuant to the *Hazardous Materials Transportation Act*[57], the ***Transportation Department's Material Transportation Bureau*** and the ***Bureau of Motor Carrier Safety*** exercised some control over the launch license procedure as far as transportation of hazardous materials (rocket propellants) to and from the launch site is concerned[58] .

The ***Department of Defense*** does not consider itself as having any regulatory role relating to private ELV's[59]. However, as well as NASA, the DOD will play a role in the activities of operators of private ELV's launching from DOD facilities, particularly insofar as safety is concerned.

As having the duty to protect commercial and leisure sea vessels against

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[56] Mossinghoff, "Managing Tort Liability Risks in the Era of the Space Shuttle"(1979) 7 *Journal of Space Law*, 121,122.

[57] 49 USCA. 1801-1812.

[58] K.G.Yelton, "Evolution, Organization and Implementation of the Commercial Space Launch Act and Amendments of 1988", Winter 1989, *Journal of Law and Technology*, 117, at 123.
B.Brumberg, "Regulating Private Space Transportation",(1984) *Administrative Law Review*, 363-385, at 381.

[59] Space Commercialization Hearings Before the Subcommittee on Space Science and Applications of the House Comm on Science and Technology 98th Cong 1st Sess 65 (1983), at 155 (Statement of Colonel Jacoby, Department of Defense).

potential hazards, the ***Coast Guard*** may have some interest in the activities of private ELV's in case some parts of the rocket were susceptible to fall in the territorial waters of the United States[60].

Finally, launches should be notified to ***NORAD***[61]. The first reason is that NORAD tracks all objects in outer space, so that the launch of a new one is necessary information for them. The second reason is that NORAD may recommend to the operator of the ELV some adjustments of the flight plan in order to prevent collision or damage with other objects in space[62].

Some other agencies have been mentioned, as well, as having a possible role

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[60] Port and Waterways Safety Act, 33 USC Parts 1223(c), 1225 (1982).

[61] North American Aerospace Defense Command.

[62] For more developments about the different agencies interested in private ELV see :
* Allen Duane Webber, "Launching the Rocket Industry in the United States : Domestic Regulation of Private Expendable Launch Vehicles.(1984) *Journal of Air Law & Commerce*, 1, at 9.
* John T.Stewart,Jr, "US Private Enterprise Enters the Space Arena. The Beginning", (1985) 26 *Colloquium*, 149-156,at 150 ff.
* James R.Myers, "Federal Government Regulation of Commercial Operations Using Expendable Launch Vehicles", (1984) 12 No1 *Journal of Space Law*, 40-51, at 42 ff.
* K.G.Yelton, "Evolution, Organization and Implementation of the Commercial Space Launch Act and Amendments of 1988", (Winter 1989) 4 *Journal of Law and Technology*, 117-137.
* B.Brumberg, " Regulating Private Space Transportation"(1984) *Administrative Law Review*, 363-385.
* E.R.Finch Jr & A.L.Moore, *Astrobusiness: A Guide to the Commerce and Law of Outer Space* (New York: Praeger, 1985), at 58.

in licensing launch activities[63]:

- The ***Central Intelligence Agency (CIA)*** could be involved with respect to national security implications[64].

- The ***Arms Control and Disarmament Agency*** may check that possible launch operations comply with arms control agreements[65].

- The ***Occupational Safety and Health Administration*** may be involved in developing and enforcing employee health and safety standards[66].

- The ***Environmental Protection Agency*** may regulate certain matters relating to hazardous materials, air and water pollution standards, environmental impact statements concerning launch sites[67].

This overview of the agencies involved in the licensing process shows what a regulatory maze the process for space launch operations was at that time. As Mr

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[63] K.G.Yelton, op.cit, at 124.

[64] * Central Intelligence Agency Act of 1949. 50 USC. 403 et seq.
* National Security Act of 1947. 50 USC. 403 et seq.

[65] Arms Control and Disarmament Act. 22 USCA 2551 et seq.

[66] Occupational Safety and Health Act of 1070. 29 USCA. 654, 655.

[67] * Comprehensive Environmental Response Compensation and Liability Act of 1980. Pub.L. No 96-510, 94 Stat. 2767. 40 CFR. 300 et seq.
* Resource Conservation and Recovery Act of 1976. Pub.L. No 94-580, 90 Stat 2795. 40 CFR 260-282.
* Clean Air Act. 42 USCA 1857, 4362, 7401-7642. 40 CFR 52, 53.
* Clean Water Act of 1977. 33 USCA 1251-1376. 40 CFR 123.
* National Environmental Policy Act of 1969. 42 USCA 4321, 4331-4335, 4341-4347. 40 CFR 1500-1517.

F.Whiting, Executive Director of the American Space Foundation, remarked[68]: "*In order to get a private ELV off the launch pad, (...), the average firm has had to run a bureaucratic gauntlet of some 18 Federal Agencies, overseeing 22 statutes or regulatory guidelines, none of them passed or promulgated with the express intent of overseeing commercial launch vehicles*". Having this in mind, it is interesting to take a look at the practical side of the situation, through the example of SSI.

(D).- FIRST PRACTICAL EXPERIENCE. SSI.

The SSI experience took place in two steps. At first, the company planned to launch the *PERCHERON*. Then, they launched the *CONESTOGA*. These two different experiences deserve some developments.

a).- *PERCHERON*.

The Percheron was a launcher entirely designed by SSI. Unfortunately the launch of Percheron happened to be a failure because of an explosion during an engine test which destroyed the rocket. However, it is interesting to examine the regulatory procedure followed by SSI.

As we have already explained, at that time no existing structure was in charge

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[68] Space Commercialization Hearings Before the Subcommittee on Space Science and Applications of the House Comm. on Science and Technology. 98th Cong. 1st Sess 65 (1983).

of issuing the licenses for such launches. Consequently, SSI contacted every agency that might have an interest in this launch.

The *FCC* required SSI to obtain a license.

The *Department of State* did not require any formal clearance because the launch was to take place entirely on the United States' territory.

NASA had an advisory role on technical matters, both for SSI and the FAA.

In fact, the *FAA* was the agency most involved in the process of this launch, mainly because only the FAA could rely on some regulations with respect to rockets. Because of the short time available before the day of the launch, SSI required a waiver from the FAA. In fact, SSI obtained the waiver on August 4,1981 for a launch scheduled for August 12,1981. The exemption procedure would not have allowed adherence to the launch date. In its application, SSI gave the following information :

- a waiver was required of the regulations proscribing flights in controlled airspace and flights within a 5 miles boundary from an airport;
- the launch was to be "single, non recurring, low altitude, flight test of the Percheron rocket test article";
- flight plan;
- launch window;
- purpose of the launch;
- description of the rocket;
- description of the launch site;

- safety precautions planned.

While granting the waiver, the FAA imposed that :

- the operator was responsible for scanning the airspace within 9 miles of the launch site to keep the area clear of non-participating aircraft and water vessels;
- operations be conducted only between 15 minutes after sunrise and 10 A.M.
- the operator maintain direct communications with the local Air Traffic Control Center when operations were being conducted in controlled airspace;
- the FAA retained the right to cancel or amend the waiver if safety conditions so require or if the conditions of the launch changed.[69]

b).- *CONESTOGA*

The procedure related to this launch was more cumbersome than that of the Percheron. Indeed, the conditions of the flight were different. In fact, the flight was

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[69] On Percheron, see
* Allen Duane Webber, "Launching the Rocket Industry in the United States: Domestic Regulation of Private Expendable Launch Vehicles, (1984) *Journal of Air Law & Commerce*, 1, at 22.
* E.R.Finch & A.L.Moore, *Astrobusiness: A Guide to the Commerce and Law of Outer Space* (New York: Praeger, 1985), 56 & ff.
* J.R.Myers, "Federal Government Regulation of Commercial Operations Using Expendable Launch Vehicles", (1984) Vol 12 No1 *Journal of Space Law*, 40-51.
* A.Dula, "Private Sector Activities in Outer Space", (Winter 1985) Vol 19 No1 *Int'l Lawyer*, 178 & ff.

to take the rocket out of United States' territorial waters. Moreover, SSI was using for this flight an engine provided by NASA. Finally, SSI wished to obtain an exemption from FAR Part 101, Subpart C, and all other regulations that the FAA may have considered relevant. SSI considered first, that the existing regulations were not applicable to private launches such as Conestoga, and second that they had taken all necessary safety measures. The exemption was requested for a single launch of Conestoga.

SSI filed its petition with *FAA* on March 16, 1982[70]. The main elements of this petition were the following:

- SSI requested a two month launch window in case of delays;
- description of the Conestoga launcher;
- description of the launch site (technical aspects, capabilities);
- flight path (supposed to cross no permanent human habitations and no foreign countries);
- History of SSI. Relations between SSI and other enterprises involved in the launch;
- test flight ("sub-orbital test simulating payload orbital injection").Future potential of Conestoga;
- safety measures taken by SSI:
    * SSI hired experienced launch contractors and engineering consultant

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[70] In the Matter of the Petition of Space Services Inc, FAA Regulatory Docket No 22 775 (16 Mars 1982).

* use of the Minuteman I M56A rocket motor

* safe distance between the launch pad and the control facilities and viewing areas

* barricade to protect the control facilities

* portable fire fighting equipment

* security and onsite operations personnel

* media announcement of the launch time and flight plan

* direct communications with the local FAA air traffic control center

* radio initiated self-destruct device

* SSI asked FAA to issue safety warnings to aircraft and sea vessels.

The procedure took six months to be completed and cost about $ 250 000. Two notices of the petition were put by the FAA in the Federal Register[71]. In the second notice in particular, FAA put some safety conditions as a prerequisite for an exemption:

- establishment of a temporary restricted area within domestic airspace to isolate the rocket from other air traffic operations;

- operational parameters, outside of which the vehicle's thrust would be over;

- domestic and international notice to airmen and mariners defining the flight plan;

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[71] These notices are aimed at calling the public to comment on the propriety of these activities.
First notice : 47 *Fed Reg* 16.243 (Apr 15, 1982).
Second notice : 47 *Fed Reg* 31.229 (July 26, 1982).

- direct communication between launch operator and the local air traffic control;

- restrictions in IFR flight operations in affected international airspace.

Finally, the FAA granted the exemption on September 1, 1982[72] with the following conditions :

- the exemption was only partial. SSI was exempted from regulations related to the operation of a rocket in controlled airspace or within 5 miles of the boundary of an airport, but not from the rest, especially the clear weather conditions.

- necessity for SSI to agree with a nearby airport to close it during the launch.

- necessity of an insurance coverage of $ 100 millions to be obtained by SSI.

- necessity to ensure the respect of certain parameters by the rocket.

- direct regular communication requested between SSI and the Houston Air Traffic Control Center. The Houston Center was empowered with the authority to delay the launch for safety reasons.

- general duty given to SSI to "delay, cancel or terminate...[the] rocket operation at any time the safety of persons or property is jeopardized".

FAA also issued an order restricting airspace temporarily and notices to airmen

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[72] In the Matter of the Petition of Space Services Inc of America, exemption No 3615, FAA Regulatory Docket No 22 775 (1 Sept 1982).

concerning the launch[73].

As for the *Department of State*, SSI believed that an export license was not necessary but submitted, on April 15, 1982, a letter to the Office of Munitions Control of the DOS (OMC). But it turned out that obtaining an export clearance was necessary and difficult. In fact, SSI obtained the export authorization under the Arms Export Control Act on September 7,1982, one day prior to the launch. The OMC issued this authorization under certain conditions :

- the authorization was limited to the Conestoga launch;
- SSI was to comply with the safety measures required by FAA and NASA;
- it was understood that SSI obtain the $ 100 million insurance;
- SSI was required to indemnify the United States government for any damage and expenses in connection with the launch, including payments made pursuant to any treaty.

As for *NASA*, it sold the Minuteman I rocket motor to SSI[74]. Prior to the sale, NASA reviewed technical and safety aspects of the launch. In the sale contract, SSI was required to obtain flight insurance to indemnify the United States, its agencies, employees and contractors.

FCC also granted SSI a temporary permit to operate a radio frequency for

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[73] On the role of FAA in this case, see P.D Nesgos, DCL Thesis id note 21,p 181 ff.

[74] The Conestoga launcher was made of one stage which was in fact the second stage Aerojet M56-A1 of the strategic ballistic missile Minuteman 1, bought for $ 365 000, see : P.Langereux, " Lancement réussi de la première fusée privée américaine" (18 Sept 1982) 920 *Air & Cosmos*, 25.

its communications with Conestoga[75].

As SSI imported meteorological test rockets from the Federal Republic of Germany, the *ATF* considered that a registration approval was necessary. SSI had to fill forms for both the ATF and the IRS[76].

SSI collaborated as well with the *United States Navy*, the *Coast Guard*, *NORAD* and the *Department of Defense*[77].

Eventually, the Conestoga launch was successful. Conestoga flew over 300 km into outer space and landed in the international waters of the Gulf of Mexico, over 450 km from its launch site[78].

The description of the procedures followed to operate Percheron and Conestoga launches, shows that there was really a need for coordination and simplification of the procedures to be followed by private enterprises, because these procedures would be too cumbersome in the event of regular launches. This

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[75] See: B.Brumberg "Regulating Private Space Transportation"(1984) *Administrative Law Review*, 363-385, at 380.

[76] See: B.Brumberg, op.cit., at 382.

[77] For more details about Conestoga launch see : Allen Duane Webber, "Launching the Rocket Industry in the United States: Domestic Regulation of Private Expendable Launch Vehicles" (1984) *Journal of Air Law & Commerce*, 1, at 26. E.R.Finch & A.L.Moore, *Astrobusiness: A Guide to the Commerce and Law of Outer Space* (New York: Praeger, 1985), 56 & ff; J.R.Myers, "Federal Government Regulation of Commercial Operations Using Expendable Launch Vehicles, (1984) Vol 12 No1 *Journal of Space Law*, 40 ff; A.Dula, "Private Sector Activities in Outer Space", (Winter 1985) Vol 19 No1 *Int'l Lawyer*, 178 & ff.

[78] see id note 75.
see Harrigan, "Mr Hannah's Rocket", *Texas Monthly*, Nov 1982.

situation created some pressure on the Government to define how to apply the existing regulations to future launches, in more efficient conditions.

II.- FIRST IMPROVEMENTS

1.- The idea

Prior to any governmental action, it is interesting to note that some people were already having quite clear ideas about the way relations between private enterprises and government should work. In 1981, the then Senator Cannon proposed *Bill 2448*[79]. This bill would have designated the FAA as lead agency and empowered it with the issuance of licenses for private launches. NASA would have provided technical assistance. The bill also contained provisions related to insurance. This legislation was, eventually, never enacted. Another initiative was taken in 1982, by Congressman Akaka of Hawaï. He introduced a bill under the title of "*Space Commerce Act*"[80].This bill was aimed at encouraging private sector initiative in space activities. The idea was the following : "*The bill I'm introducing today simply streamlines the regulatory procedure by establishing a single point of contact within the Federal Government for applicants to obtain permission to launch a space vehicle.*

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[79] 2448 Cong Rec April 28,1982,pp S.4205-6.
See :
John T.Stewart,Jr, "US Private Enterprise Enters the Space Arena. The Beginning", (1984) 27 *Colloquium*, 149-156, at 153.

[80] H.R.7411, 97th Cong, 2d Sess, 128 Cong.Rec. E 5132-33 (daily Ed Dec 13, 1982)
See also John T Stewart Jr, id note 78.

Under the terms of this bill, this single point of contact would be responsible for coordinating and facilitating all Federal actions pertinent to private sector space launches. In turn, this single point of contact would issue a comprehensive license for space vehicle launchings to private companies. This bill would in no way abrogate our national security interests, and would certainly result in an efficient and less costly procedure for regulating private space launches". This bill aimed at giving centralized authority to the Secretary of the Department of Commerce. However, it was not enacted.[81]

The first initiative taken by the US Government was the establishment of an interagency task force in order to study the role that each agency was to play in the field of private ELV activities.

President Reagan was in favour of the privatization of ELV. The *US National Space Policy of July 4,1982* was a new step of the evolution. The NASA Space Transportation System (Space Shuttle) was still considered as the primary launch system for the US Government. But the US private sector was encouraged to invest in space activities, in particular ELV's. This policy was seen as having interesting advantages :

- reduction of government costs, in particular development costs and launch facilities, which were borne, so far, by public budget;

- better and higher use of facilities;

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[81] About these Congressionnal actions, see : Harry R.Marshall,Jr, "Outer Space Commercialization in the United States : Effects on Space Law and Domestic Law", (1984) 27 *Colloquium*, 90-97, at 94 ff.

- it would improve the general economy of the USA and strengthen the position of the USA on the market of commercial ELV;

- NASA would be able to concentrate on the shuttle;

- jobs would be provided to thousands of workers;

- a market would be provided for hardware, equipment and propellants.[82]

But the administration was well aware of the fact that these benefits from private ELV activities were dependant on a simplification of the licensing and authorization procedures. Particularly, it was already obvious that these enterprises should deal with a single agency within the government.

2.- The decision to go ahead.

On May 16, 1983, a Reagan administration policy was issued by the National Security Council on Commercialization of ELV, in order to facilitate this activity, confirming the 1982 policy. Two points were outlined in this policy :

- governmental regulation should not be an obstacle to private activities. Consequently, it must be limited to the extent necessary to comply with international and national obligations and to ensure public safety;

- private ELV operators will be encouraged to use governmental launch

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[82] See Harry R. Marshall, Jr, "Outer Space Commercialization in the United States. Effects on Space Law and Domestic Law" (1984) 27 *Colloquium*, 90-97, at 92.

facilities[83].

This policy also set up an interim working group (SIG) for space on commercial launch operations, co-chaired by the Department of State and NASA, this group including members of the interested agencies[84]. The task of this group was :

- to streamline the procedures used in the interim to implement existing licensing authority;
- develop and coordinate the requirements and process for the licensing, supervision, and/or regulations applicable to routine commercial launch operations from commercial ranges;
- recommend the appropriate lead agency within the US Government to be responsible for commercial launch activities.

As noted by some authors, "*SIG (Space), as it was called, was heavy and serious politics. Participating were individuals representing various agencies of the United*

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83 * Press Release, the White House, Office of the Press Secretary. May 16, 1983.
* Arthur Dula ,"United States Government Authorization and Supervision of Non-Governmental Space Activities : Present Law and Future Possibilities", (1984) 27 *Colloquium*, 35-44, at 40.
* Harry R. Marshall, id note 81, at 93 ff.

84 SIG (Space) was chaired by the Assistant to the President for National Security Affairs, and principal membership included the Deputy Secretary of Defense, Deputy Secretary of Commerce, Director of the Central Intelligence Agency, Chairman of the Joint Chiefs of Staff, Director of the Arms Control and Disarmament Agency, and the Administrator of NASA. P.L.Meredith & G.S.Robinson, "Domestic Commercialization of Space: The Current Political Atmosphere", in *American Enterprise, the Law and the Commercial Use of Space*, National Legal Center for the Public Interest, 1986, at 5.

States governments whose perceived interests were not to prove terribly supportive of any efforts led by Secretary Dole to diminish in any way the established dominance of NASA in the world's space transportation systems, particularly as that role related to the Space Shuttle and to the Department of Defense's precipitously-evolving strategic plans for the use of space".[85]

Until this agency is designated, the Department of State was chosen as central point for commercial ELV authorizations and requests[86].

On August 3, 1983, President Reagan met with a number of people involved in space commercialization to discuss this issue[87]. "*These commercial space leaders*

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[85] P.L.Meredith & G.S.Robinson, op.cit, at 5.

[86] Expendable Launch Vehicles. Announcement of US Government Support for Commercial Operations by the Private Sector. May 16,1983. 19 *Weekly Comp. Pres. Doc.*721.

[87] Were present :
- John F.Yardley, President, McDonnell Douglas Astronautics
- Maxime Faget, President, Space Industries Inc
- Robert A. Hanson, Chairman and Chief Executive Officer, Deere Inc
- Frederick W.Smith, Chairman and Chief Executive Officer, Federal Express
- George Jeffs, President, North American Space Operations, Rockwell International
- George Skurla, Chairman and President, Grumman Aerospace
- David Thompson, President, Orbital Systems Corp
- David Hannah, President, Space Services Inc
- Oliver C.Boileau, President, General Dynamics
- John Latshaw, Executive Vice President and Managing Director, E.F.Hutton Co.Inc
- John W.Townsend, Jr, President, Fairchild Space Co
- Klaus P.Heiss, a consultant active in space commercialization efforts
- White House personnel and other government officials including NASA Administrator James M.Beggs, L.J. Evans, head of the NASA space commercialization task force, and Clarence J. Brown, deputy secretary of the Commerce Department.
In: E.R.Finch Jr & A.L.Moore, *Astrobusiness*, id note 86.

requested the President to take a much more public, aggressive stance on space commercialization in the best interests of the United States and the space industry. It was also made clear to the President by those present and by independent consultants that government policy is the key to success or failure of the current drive towards US space commercialization"[88].

In November 1983, at a meeting of the Cabinet Council for Commerce and Trade, in conclusion of the studies of several working groups, President Reagan announced his intention to designate the DOT as lead agency. It appeared that the DOT was the most appropriate agency to coordinate the regulatory process[89].

This decision was confirmed on Feb 24, 1984 with the signature by President Reagan of an ***Executive Order***[90]*(See Annex Doc 1)*. In his remarks on signing Executive Order[91], President Reagan outlined the spirit of this new decision: " *(...) we're doing all we can to encourage space work by American industry. Private enterprise made America great. And if our efforts in space are to show the same energy, imagination, and daring as those in our country, we must involve private enterprise to*

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88 E.R.Finch Jr & A.L.Moore, *Astrobusiness. A Guide to the Commerce and Law of Outer Space.* (New York: Praeger, 1985), at 30-31.

89 For details about the reasons leading to the choice of the DOT see. Allen Duane Webber, "Launching the Rocket Industry in the United States. Domestic Regulation of Private Expendable Launch Vehicles", (1984) *Journal of Air Law & Commerce*, 1, at 46.

90 Commercial Expendable Launch Vehicle Activities. Executive Order 12 465 February 24,1984. 20 *Weekly Comp Pres Doc* (1984) 49 *Fed Reg* No40 Tuesday, February 28, 1984.

91 Remarks on signing Executive Order 12 465. February 24, 1984. 20 *Weekly Comp Pres Doc* 263.

the full. And that's where today's important event comes in.(...) Until today, private industries interested in ELV's have had to deal with 17 government agencies. From now on, they'll only have to get in touch with the Department of Transportation, and the Department will clear away what Secretary Dole has called 'the thicket of clearances, licenses, and regulations that keep industrial space vehicles tethered to their pads'". The Executive Order officially designated the DOT as lead agency for facilitating and encouraging commercial ELV activities by US firms. Two important points are dealt with in this order.

1) Role of the DOT

The DOT's task will be:

- to promote and encourage commercial ELV operations
- to lead the establishment of procedures to expedite private launch approvals
- to serve as the single point of contact for the collection and distribution of ELV license applications and documentation
- to recommend administrative measures to streamline federal licensing procedures.
- establishment of an interagency group to advise and assist the DOT in performing its responsibilities under the order.

2) Role of other agencies

Their task will be to:

- provide the DOT with information on relevant regulatory actions
- eliminate unnecessary regulatory obstacles to ELV development and ensure that essential regulations are administered as efficiently as possible
- establish timetables for expeditious treatment of applications for approval of ELV activities.

However, the Executive Order provides that all agencies keep their regulatory powers. Consequently, the DOT has a mere role of coordination, and will try to reduce the regulatory burden. Even though this decision was already a very important step in the process of facilitating private ELV's activities, certain authors[92] soon reacted, underlining the weaknesses of this policy, mainly because of the fact that the DOT was not given real regulatory powers to organize efficient procedures.

The Secretary of Transportation established within the Office of the Secretary of Transportation an "*Office of Commercial Space Transportation*" to develop cooperation procedures between agencies and private firms[93]. To facilitate this process, the office used three techniques :

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[92] * Allen Duane Webber, "Launching the Rocket Industry in the United States : Domestic Regulation of Private Expendable Launch Vehicles", (1984) 50 *Journal of Air Law & Commerce*, 1-67, at 52, who suggested the establishment within the DOT of a separate agency to regulate ELV operations which establish and apply a single set of guidelines or regulations to govern private launches.
* Arthur Dula, "United States Government Authorization and Supervision of Non Governmental Space Activities : Present Law and Future Possibilities", (1984) 26 *Colloquium*, 35-44, at 39.

[93] In fact the Office was created in November 1983 and worked unofficially from Nov 1983 to Feb 1984.

"1.- Reduction or elimination of sequential coordination of license applications by Federal Agencies;

2.- Elimination of duplicative review through voluntary reliance, whenever possible, of one agency upon another agency's work; and

3.- Specification in advance by each agency of the information an applicant must provide before that agency can act upon the application"[94].

The authority to issue Arms Export licenses (ITAR) was also transferred from the DOS to the DOT, as an interim measure.

The Office has also worked to facilitate access to governmental launch facilities for private enterprises. Moreover, certain firms were thinking of establishing commercial ranges. Consequently, the Office, with the help of range safety and operations experts, elaborated standards to be applied to launch facilities in order for them to meet the licensing requirements[95].

Finally, as a support to the action of the DOC, a Commercial Space Transportation Advisory Committee was established on April 12, 1984[96]. Its task was defined in the notice of the DOC as follows: " *The COMSTAC, acting as an advisory committee, provides information, advice and recommendations to the Secretary of Transportation on matters relating to all aspects of the commercialization of*

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[94] E. Jason Steptoe, "United States Government Licensing of Commercial Space Activities by Private Enterprise", (1984) 26 *Colloquium*, 191-196, at 194.

[95] id, at 195.And: (1984) 49 *Fed Reg* 14621.

[96] Department of Transportation. Public Notice No 84-5. Establishment of Commercial Space Transportation Advisory Committee. April 12, 1984. 49 *Fed Reg* 14 621.

expendable launch vehicles. The COMSTAC does not exercise program management or regulatory development responsibilities, and makes no decisions directly affecting the programs on which it provides advice. The COMSTAC provides a forum for the development, consideration and communication of information from a knowledgeable, independent perspective".

3.- The experience of Starstruck

The first launch of the Starstruck's Dolphin took place on Feb 6,1984[97], but unfortunately failed. At that time, Starstruck had to repeat all procedures. It could not rely on SSI's experience because the Dolphin launch had different characteristics. The launch happened outside United States' territory. Consequently, Starstruck did not apply for an exemption from the FAR's. But, actually, as the launch occurred outside US territory, the DOS had to issue a license for the export of the rocket to the launch site. Through this procedure, the DOS finally required fr om Starstruck the same amount of information as from SSI, and to obtain insurance to indemnify the USA. Starstruck also had to obtain a radio license from FCC.

The second launch of Dolphin took place on Aug 3,1984[98]. By that time, the

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97 * "Dolphin at Sea, Private Launcher Catches Fire, Thrown Overboard", Feb 20, 1984, *Satellite Week*,6.
* "Starstruck to Continue Dolphin Tests", Apr 11,1984, *J.Com*, at 2a.

98 "Starstruck Launches Prototype Dolphin Rocket in First Flight" (Aug 13,1984) *Av Week & Space Techn*,20.

Office of Commercial Space Transportation had been created. Thus, Starstruck was the first company to deal with this single point of contact. It seems that the process was less cumbersome[99]. But it is important to note that it was just a matter of rescheduling the launch. Consequently, this experience is not helpful to imagine what would have happened in case of request of a totally new license. In fact, basically, the point of contact was unique, but the procedures and requirements were still the same.

However, some improvements were brought about by the role of the Office of Commercial Space Transportation. As J.Dorn, Director of the OCST stated: "*The actual prototype launch activity in which we have been involved, which was the test and demonstration launch for a company called Starstruck, allowed the government to have, for the first time, a hands on experience with the approval process. This has enabled us, even though it was a suborbital launch off international waters, to eliminate some overlapping information and review requirements. We found that there was really an excess of caution on the part of a number of Federal agencies. They were not sure that there was any other agency in charge, and therefore, they wanted to make sure that legitimate public policy concerns had been met. Now that there is a focal point, I think there is a sense of confidence that a single agency has the responsibility to make sure all public policy needs are met, and that has, as a result, eased the burdens for the industry. We are not home free yet, but I think many of the informational requirements*

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[99] M.Straubel, "The Commercial Space Launch Act: The Regulation of Private Space Transportation" (1987) 52 *Journal of Air Law & Commerce*, 941-969, at 947.

have been minimized"[100]. Moreover, the OCST happened to be very helpful to Starstruck as this statement of J.Dorn underlines: "*Our first 'hands on' experience was to facilitate the Federal Approval process for Starstruck's test launch that was successfully conducted off the coast of California on August 3. To achieve this, we assisted the efforts of the approving agencies - State, NASA, FAA, Materials Transportation Bureau (MTB) and US Coast Guard - to set priorities, to coordinate their activities and thus to expedite the Federal review. No sooner had the final Federal approval been issued that Starstruck faced difficulties with local authorities. Through the Coast Guard and MTB, we were able to alleviate concerns of local safety officials. And later, when Starstruck's concept of launching 250 miles off the coast proved infeasible, we worked with the company, the FAA, Coast Guards and the Department of Defense to develop ways to allow Starstruck to launch in closer proximity to the United States' coast. This experience has been invaluable in shaping our ideas, actions and recommendations for streamlining the Federal approval process (...)*"[101]

The first task of the OCST has been to accomplish a systematic investigation of the legal and operational issues that could affect commercial ELV's. It also made a compilation of all information required by the Government from the industry to ease the procedures to be followed. The Office worked with DOD to encourage the use of national ranges (procedures and costs), and on the development of criteria

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[100] Space Commercialization Hearings Before the Subcommittee on Space Science and Applications of the House Committee on Science and Technology. 98th Cong. 1st Sess 65 (1983), at 25.

[101] Hearings, op.cit., at 32.

for site selection and operating procedures for future commercial sites. At that time, the licensing process already contained the basics of what would be the future licensing system. It was composed of two steps. First was the launch approval: the OCST required the proof of capability of the applicant to conduct a safe launch. Second was the mission approval: the applicant had to indicate the nature of the payload, where it is launched..., mainly information necessary for the OCST to assess potential impacts on national security and foreign policy interests. When these two tests have been met, a license can be issued. This is always a license for one launch. The DOT was in favour of a case-by-case licensing, which does not necessarily mean that the whole procedure has to be followed again for each launch. Thus, as Ms Dorn stated[102]: " *We think this is a good approach for the expendable launch industry. If you have a vehicle that has not yet found a payload, as an example, we could, once they have proved their technical capability to conduct a safe launch, issue a letter or other assurance that could be used to assure potential customers that DOT has approved their proof of capability, and that part of the license test has been met. In other instances, in a case where different payload is launched using a previously approved vehicle, the proof of capability would be a pro-forma kind review, because we would have already approved their vehicle and operating procedures. Our objective is to make this as simple as possible while protecting the public. Generic launch licenses, because no two launches are the same, would really be impossible. However, we do not think this would be a burden for the industry*".

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[102] Hearings, op.cit., at 28.

Another important step was that DOT and DOS agreed so that the ITAR be transferred to DOT.

Finally, in order to discuss some problems related to the use of radio frequencies[103], the DOT brought together representatives of five ELV launch firms, the FCC and the NTIA, and eventually these discussions turned out to be very helpful[104].

However, in carrying out its authority, the OCST had to face strong opposition. Conflicting interests did not facilitate its task. In particular, the OCST had to deal with the strong interests of NASA and of the DOD. But also the launch industry itself was lobbying in divergent directions. The big established companies (Martin Marietta and General Dynamics) were supporting the authority of NASA, while the new companies (SSI and Starstruck) were giving support to the OCST[105].

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[103] "The launch firms were concerned that their access to government controlled radio frequencies critical to launch activities might be constrained" Hearings, op.cit., at 33.

[104] The information given above about actions taken by the DOT after the Executive Order, are subject to some developments by J.Dorne in the Hearings op.cit.

[105] On those conflicting interests see: P.L.Meredith & G.S.Robinson, "Domestic Commercialization of Space: The Current Political Atmosphere", in *American Enterprise, the Law and the Commercial Use of Space*, National Legal Center for the Public Interest, 1-29.

CHAPTER 2.- THE COMMERCIAL SPACE LAUNCH ACT AND THE CURRENT LICENSING REGULATIONS.

America was built by dreamers.

It is good to know the dreamers are alive and well.

Orbital Sciences Corporation

(Advertising).

"America has always been greatest when we dared to be great. We can reach for greatness again. We can follow our dreams to distant stars, living and working in space for peaceful economic and scientific gain". President Ronald Reagan. State of the Union Message. Jan 25, 1984.

As we have seen previously, the Department of Transportation was designated lead agency by the Executive Order 12465, 1984, and it started to simplify and coordinate private ELV licensing procedures. However, this was not guaranteeing enough stability and predictability to private ELV operators. Thus, Congress emphasized this need for continuity: " *While the [Commerce, Science and Transportation Committee] believes that there has been no lack of commitment by DOT to implement the provisions of E.O 12465, a change in administrations could lead to de-emphasis or a modification of this policy. A Congressional mandate via legislation, would eliminate or reduce the possibility of any arbitrary redirection, restructuring or abandonment of this initiative*"[1]. In this view, Congress codified many of the policies initiated by the administration and this legislation was eventually incorporated in the Commercial Space Launch Act 1984[2].In this Chapter, we will examine, as well, the regulations subsequently adopted by the DOT.

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1 S. Rep No 656. 98th Cong 2d Sess 2 (1984).

2 The Act is reprinted in Annex, Doc 2 in its unamended version. 49 USC par.2601-2623 (Supp II 1984) hereafter CSLAct 1984.

A.- THE COMMERCIAL SPACE LAUNCH ACT: JUSTIFICATION AND PURPOSE

First of all, it is important to keep in mind that " The Act does not create any new substantive requirements for launching a launch vehicle or operating a launch site. The authority it gives the Secretary of Transportation represents, in effect, consolidation in one licensing process of all existing requirements of Federal Law currently applicable to launches or launch sites".[3]

Apart from the justification mentioned above, two important ideas were expressed by Congress in its findings[4]:

- the private sector has the capability of developing and providing launch services, and this is in the interest of the United States;

- " the United States should encourage private sector launches and associated services and, only to the extent necessary, regulate such launches and services in order to ensure compliance with international obligations of the United States and to protect the public health and safety, safety of property, and national security interests and foreign policy interests of the United States". In view of these elements and as a consequence of the previous evolution, the purposes of the Act were expressed as follows:

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[3] E.J.Steptoe, "Regulation of Private Commercial Space Transportation by the United States Department of Transportation", (1985) 28 *Colloquium*, 240-246, at 243.

[4] Sect 2 CSLAct 1984. 49 USCS par 2601 (Supp II 1984).

" (1) to promote economic growth and entrepreneurial activity through utilization of the space environment for peaceful purposes;

(2) to encourage the United States private sector to provide launch vehicles and associated launch services by simplifying and expediting the issuance and transfer of commercial launch licenses and by facilitating and encouraging the utilization of Government developed space technology; and

(3) to designate an executive department to oversee and coordinate the conduct of commercial launch operations, to issue and transfer commercial launch licenses authorizing such activities, and to protect the public health and safety, safety of property, and national security interests of the United States."[5]

The reference to the need to make sure of the use of the space environment for peaceful purposes finds its origin in the treaty obligations that have to be complied with by the United States: in its Art.IV, the Outer Space Treaty 1967 provides for this obligation to use outer space for peaceful purposes only[6]. It is also in the view of the treaty obligations of the United States that par.3 of Section 3 refers to the need for issuance of launch licenses. Indeed, both the Outer Space

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5 CSLAct Section 3.See: E.J.Steptoe, "Regulation of Private Commercial Space Transportation by the United States Department of Transportation", (1985) 28 *Colloquium*, 240-246, at 241.

6 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and the Other Celestial Bodies Jan 27, 1967. 18 UST 2410; TIAS No 6347; 610 UNTS 205. Art VI.

Treaty and the Registration Convention call for such licenses[7].

B.- DEFINITIONS

In its Section 4, the Act provides for a series of definitions. It is interesting to have a closer look at some of them.

a) Launch

The Act defines to "launch" as meaning " *to place or attempt to place, a launch vehicle and payload, if any, in a suborbital trajectory, in Earth orbit in outer space, or otherwise in outer space*"[8]. No mention is made in this definition of the commercial nature of the launch. In other words, was this definition designed to encompass both commercial and non-commercial launches ? It seems that this precision was left aside on purpose, as the Senate Report suggests[9]: " *While the Committee believes that the Act currently provides adequate supervision for all non-Governmental (commercial or non-commercial) space launches, the Committee currently envisions that, at least in the near term, launches subject to the provisions of the Act will only be commercial in nature. However, the Committee also recognizes that other types of non-*

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[7] Outer Space Treaty Art 6, Art 7 and Art 8 combined; Convention on Registration of Objects Launched into Outer Space, Jan 14 1975, 28 UST 695, TIAS No 8480, 1023 UNTS 15, Art 2.

[8] CSLAct 1984 Sect 4, (2).

[9] Senate Report No 98-656, 98th Congress 2nd Sess, 2 reprinted in 1984 US Code Cong & Admin News 5328, 5329, at 5335.

governmental space launches, such as those of a university consortium, could eventually occur. A "university" space launch would not be commercial in the true sense of an activity with a profit motive, but could be non-Governmental and thereby be subject to Federal supervision as prescribed in the Act. Since the Committee does not envision this type of non-commercial, non- Governmental launch as one likely to occur in the near term, the definition of "launch" infers a non-Governmental, commercial launch".

b) Launch vehicle

The Act defines a "*launch vehicle*" as meaning "*any vehicle constructed for the purpose of operating in, or placing a payload in, outer space and any suborbital rocket*"[10]. There is no doubt that both ELV and reusable launch vehicles are included in this definition and, consequently, covered by the Act[11]. However, it can be discussed whether the so-called upper-stages, used to move a payload from a low Earth orbit to a higher orbit, are included in the definition. In fact, the Congress left this matter aside intentionally: " *While the Committee has intentionally excluded any reference to upper stages in the definitions of "launch vehicle" and "payload" and has not made any provisions in the Act to license upper stages, the Committee recognizes that the question of upper stages is an issue that may warrant additional study in the future. Our Nation's current upper stage capabilities have been in question during the*

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[10] CSLAct 1984 Sect 4.6.

[11] On the question of whether the future aerospace plane could be included in this definition, see: S.Gorove, "The Growth of Domestic Space Law. A US Example" Vol 28 No2 *Journal of Space Law*, 99-218, at 108.

past year. Given these uncertainties and given any unforeseen roles that upper stages might have in the future ELV systems, the Committee believes that upper stages, relative to the licensing of commercial space launches, may warrant future examination".[12]

In this definition of a "launch vehicle", the Congress has also not addressed the matter of tooling of a launch vehicle and items used in the manufacture of a launch vehicle. " *The Committee is aware that the "tooling" of a launch vehicle and items used in the "manufacture" of a launch vehicle may involve tools and processes that have multiple uses and may be used for Government activities as well as for private ELV activities. Since the Federal Acquisition Regulations lay out specific guidelines for mixing Government and private activities, the Committee believes that it is inappropriate to include these items in the statutory definition of "launch vehicle". Imposing a separate rule for ELV's could introduce confusion, additional paperwork, and coordination problems, and could contravene the existing statutory language*"[13].

c) Payload

It is defined by the Act as "*an object which a person undertakes to place in outer space by means of a launch vehicle, and includes subcomponents of the launch vehicle specifically designed or adapted for that object*"[14]. As has been explained previously, upper stages are not included in this definition. Moreover,

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[12] Senate Report No 98-656, 98th Congress, 2nd Sess 2. Reprinted in 1984. US Code Cong & Adm News 5328, 5329, at 5335.

[13] Senate Report No 98-656, *id*, at 5334-5335.

[14] CSLAct 1984. Sect 4.7.

telecommunication satellites are exclusively licensed by FCC and remote sensing satellites by the Department of Commerce. Consequently, they are not included in the payloads which are under the authority of OCST.

A question arose out of the comments on DOT regulations addressed to the OCST by the House Committee on Science and Technology. Payloads are defined as "objects", not people. Consequently, there might be a problem regarding authority of the OCST over private entities who may be planning manned launch activities. But the Office answered that it could not see in that definition any impediment to exercising its role. " *Neither the Act nor the Report that accompanied the Act at passage indicates that "launch of a launch vehicle" should be read exclusively as launch of an unmanned launch vehicle*"[15]. For the OCST, there should be no difference in the treatment of those two types of launches. The major reason exposed is that the OCST does not want the private entities planning to launch manned vehicles to be in the situation experienced by ELV companies prior to issuance of Executive Order 12465 and passage of the Act[16].

d) United States Citizen

The Act defines this term as follows:

" "*United States citizen*" *means* -

(A) Any individual who is a citizen of the United States;

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[15] (1988) 53 *Fed Reg* 11006.

[16] (1988) 53 *Fed Reg* 11006.

(B) Any corporation, partnership, joint venture, association or other entity organized or existing under the laws of the United States;

(C) Any corporation, partnership, joint venture, association, or other entity which is organized or exists under the laws of a foreign nation, if the controlling interest (as defined by the Secretary in regulations) in such entity is held by an individual or entity described in subparagraph (A) or (B)"[17].

This definition has its origins in the " *concerns that exist as to the extent of US jurisdiction and control over launch activities, the extraterritorial implications of licensing launches and launch operations in foreign nations, and liability considerations of commercial launch activities*"[18].

The definition of "*US Citizen*" is wide and its combination with the licensing requirements[19] is done in order for the United States to make sure that it adheres to its treaty obligations whenever its liability might be involved, to be on the safe side.

The Act, as finally drafted, does not give any definition of "*controlling interest*" and leaves it to the appreciation of the Secretary. The original project of the Act, as introduced by Senator Trible[20] gave a definition of the expression "*controlling*

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[17] CSLAct 1984 Sect 4.11.

[18] Senate Report No 98-656. 98th Congress, 2nd Sess.2. Reprinted in 1984. US Code Cong & Adm News 5328, 5329, at 5334.

[19] CSLAct Section 6

[20] S 2931 to facilitate certain space launches, and for other purposes. Reprinted in Hearing before the Subcomm on Science, Technology and Space of the Comm on Commerce, Science and Transportation. US Senate. 98th Congress.

interest" as meaning: "*for purpose of paragraph 11 c) of this section, means a direct or indirect legal or beneficial interest in or influence over another person arising through ownership of capital stock, interlocking directorates or officers, contractual relations, or other similar means, which substantially affect the independent business behaviour of such person*". Pursuant to Sect 4.11)c) of the CSLAct, the Secretary issued a regulation defining the expression "controlling interest"[21] as "*Ownership of an amount of equity sufficient to direct management of the entity or to void transactions entered into by management*". There is a rebuttable presumption that 51% ownership is controlling.

C.- ROLE OF THE SECRETARY OF TRANSPORTATION AND INSTITUTIONAL ORGANIZATION.

1) Role of the Secretary.

In 1984, Executive Order 12465 designated the DOT as lead agency. The idea was to establish a system of one-stop shopping, allowing companies seeking launch licenses to apply to one agency only. This rule was kept and formally incorporated in the CSLAct which provided the Secretary of Transportation with exclusive

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1st Sess. S No 98-105. Washington: USGPO 1984.

[21] 14 CFR Par 401.5 (1988).

authority with respect to commercial space launches by the private sector.

Firstly, the Secretary has a general responsibility for carrying out the Act[22]. In doing so, he has the following duties:

"- encourage, facilitate, and promote commercial space launches by the private sector and,

- consult with other agencies to provide consistent application of licensing requirements under this act and to ensure fair and equitable treatment for all license applicants"[23]

- minimize regulatory guidelines to be issued[24]

- protect the public health and safety, safety of property, and national security interests and foreign policy interests of the United States[25].

Pursuant to Section 7 of the Act, the Secretary is given exclusive authority to issue or transfer a license for launching one or more launch vehicles or for operating one or more launch sites, and to specify the period of time during which this license is valid. The Secretary is also in charge of establishing procedures and timetables for the review of applications[26]. He has also some authority over the licensing requirements: thus, he may

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[22] CSLAct Sect 5 (a).

[23] CSLAct Sect 5 (a) (1) & (2).

[24] CSLAct Sect 2 (6) & (7), Sect 3.

[25] CSLAct Sect 3 (3), Sect 6 (b) (2); Sect 7; Sect 8 (a) (2), (b), (c); Sect 10 (a); Sect 11 (a).

[26] CSLAct Sect 9 (a).

- decide (by regulation) that a requirement of Federal law is not needed for obtaining a license if this requirement is not necessary to protect public health and safety, safety of property and national security interests and foreign policy interests of the United States;

- prescribe additional requirements to protect the above mentioned interests;

- waive the application of any requirement in individual cases if the waiver is in the public interest and will not jeopardize the above mentioned interest.

If the applicant meets all the requirements, the Secretary shall issue the license[27]. However, the Secretary may include certain conditions in the license, in particular, means of on-site verification that the operations correspond to what has been provided for in the license. Actually, the Act gives the Secretary wide means of verification. The Secretary is allowed to monitor licensed activities[28]. Such monitoring may be used in the following cases:

- to check that the operator of the launch complies with the conditions set forth in the license[29];

- to ascertain that all necessary licenses, authorizations and permits have been obtained[30];

- to prevent the launch of a payload by a holder of a launch license if the

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[27] CSLAct Sect 9 (b).

[28] CSLAct Sect 14 (a).

[29] CSLAct Sect 14 (a).

[30] CSLAct Sect 6 (b) (1).

Secretary determines that the launch of this payload would jeopardize the public health and safety, safety of property, or any national security interest or foreign policy interest of the United States[31].

The question arises whether this monitoring is in conformity with the Fourth Amendment search warrant requirement. By referring to the case Almeida-Sanchez, it can be said that the monitoring authority of the Secretary does not violate the Fourth Amendment search warrant requirement[32]. In that case, the Court stated that " *When a dealer chooses to engage in this pervasively regulated business and to accept a federal license, he does so with the knowledge that this business ... will be subject to effective inspection*". The Secretary issued regulations with respect to this monitoring authority[33].

2) Institutional organization

i) Office of Commercial Space Transportation (OCST)

As we have already noted[34], to carry out the functions given to it by

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[31] CSLAct Sect 11.

[32] Almeida-Sanchez v. United States 413 US 266 (1973). See: M.S. Straubel, The Commercial Space Launch Act: "The Regulation of Private Space Transportation", (1987) 52 *Journal of Air law & Commerce*, 941-969, at 954.

[33] (1988) 53 *Fed Reg* 11014. 14 CFR Par 405.1. See further analysis of the provisions in the developments on licensing procedures.

[34] See Chapter 1.

Executive Order 12465 of February 24, 1984, the Secretary of Transportation established within the Office of the Secretary, an Office of Commercial Space Transportation. In fact, this OCST was working informally since 1983. A regulation was issued by the DOT, effective on February 24, 1984[35]. This regulation officially created the OCST, headed by a Director, and reporting directly to the Secretary. In this regulation, the OCST was defined as the " focal point within the Federal Government for private sector space launch contracts and licensing related to commercial expendable launch vehicle operations and for promotion and encouragement of commercial expendable launch vehicle industry"[36]. On October 30,1984[37], after passage of the Commercial Space Launch Act, a new regulation was issued by the DOT[38]. This regulation transferred to the Director of the OCST all authority vested in the Secretary by the Act[39]. The current regulations[40] contain two provisions related to this organization: Par 401.1 and Par 401.2.

The OCST is thus a subdivision, a "unit" of the DOT[41]. It is headed by a Director who is appointed by the Secretary. The Director is delegated the authority of the

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[35] (1985) 50 *Fed Reg* 7782.

[36] 49 CFR Part 1 Par 1.23 (0). Delegation of functions, Par 1.68.

[37] Effective date of the amendment.

[38] (1985) 50 *Fed Reg* 9036.

[39] 49 CFR Part 1 Par 1.68 (b) added.

[40] (1988) 53 *Fed Reg* 11013.

[41] Par 401.1.

Secretary to carry out the Act[42]. Consequently, all obligations and powers given by the Act to the Secretary will be exercised by the Office. It is with the Office that the applicants have to deal, as their unique point of contact.

ii) Commercial Space Transportation Advisory Committee (COMSTAC)

On April 12,1984, Notice was given by the Office of the Secretary of the DOT, of the establishment of the Commercial Space Transportation Advisory Committee[43]. Its role was described as follows : " *The Committee will advise the Department of the future of the Commercial ELV industry, and DOT's efforts to stimulate private sector investment in commercial, unmanned spaced boosters*"[44]. Three objectives and duties were given to the COMSTAC[45]:

- gather information on issues to be considered, develop positions on these issues and submit them to the Secretary of Transportation;
- evaluate developments of commercial space transportation and communicate its recommendation to the Secretary;
- serve as a forum for the discussion of problems involving the relationship between industry activities and government requirements, with a view to

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[42] Par 401.2.

[43] (1984) 49 *Fed Reg* 14621.

[44] *id.*

[45] *id* III.

trying to resolve those problems.

The COMSTAC is composed of up to 25 members, appointed by the Secretary. It meets at least once a year. The rules for the functioning of the COMSTAC are provided for in details in the Notice.

D.- WHEN IS A LICENSE REQUIRED FOR PRIVATE LAUNCH OPERATIONS

In its Section 6, the CSLAct provides for the cases in which a license is required.[46]. The current regulations deal with that issue in Par 415.3[47]. There are basically four cases.

(i) The launch is to take place from the United States territory.

In that case, no person can launch a launch vehicle or operate a launch site without being authorized by a license[48]. This rule takes into account the need to comply with the provisions of the Outer Space Treaty (Art VII) as well as the Liability Convention under which the United States are liable for damage caused by

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[46] 49 USC App 2605.

[47] (1988) *Fed Reg* 11017; 14 CFR Par 415.3.

[48] CSLAct Sect 6 (a) (1); 14 CFR Par 415.3, (1988) 53 *Fed Reg* 11017.

space objects launched from within their territory[49].

(ii) The launch is to take place outside the territory of the United States.

United States citizens, in the sense of subparagraph (A) and (B) of Section 4(11) of the Act, shall obtain license, that is:

"- individuals who are citizens of the United States

- corporations, partnerships, joint ventures, associations, or other entities organized or existing under the laws of the United States or any State"[50].

This provision is aimed at controlling activities of US nationals, in order to comply with Art 6 of the Outer Space Treaty which makes the States liable for damage caused by the activities of their nationals.

As a consequence of this provision, with respect to activities of US nationals and corporations, the United States have jurisdiction over activities in international airspace, on the high seas and in foreign territory[51].

iii) The launch is to take place outside the territory of the United States and outside the territory of a foreign nation.

United States citizens, in the sense of subparagraph C of Section 4 (11) of

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[49] Convention on International Liability for Damage Caused by Space Objects. March 29,1972. 24 UST 2389, TIAS No 7762. Art I, Art II and Art III. See: M.S.Straubel, "The Commercial Space Launch Act: The Regulation of Private Space Transportation", (1987) 52 *Journal of Air Law & Commerce*, 941-969, at 952.

[50] 49 USC App 2603.

[51] Apart from activities in the US territory, dealt with in Section 6 (a) (1), see Senate Report No 98-656, 98th Congress 2d Sess,2, Reprinted in 1984, US Code Cong & Admin News 5336.

the Act, shall obtain license, that is : "any corporation, partnership, joint venture, association or other entity which is organized or exists under the laws of a foreign nation, if the controlling interest (as defined by the Secretary in regulations) in such entity is held by an individual or entity described in subparagraph (A) or (B)"[52].

Consequently, with respect to these entities, US jurisdiction applies to activities on the high seas or international airspace[53]. Indeed, in these areas no State is susceptible of exercising its jurisdiction. As the entity is controlled by US interests, the United States could be held liable for damage caused by the activities of this entity.

However, and because of this very reason, there is an exception to the rule provided for in Sect 6 (3) (A), first sentence. In its second part, this provision waives the need for a license in case of existence of an agreement in force between the United States and a foreign nation which provides that such foreign nation shall exercise jurisdiction over the launch or the operation of the launch site. Thus, basically, the United States is responsible for these activities. But it can delegate these functions to another State, by agreement.

iv) The launch is to take place in the territory of a foreign nation

The principle is that the Act shall not apply to the launch of a launch vehicle or the operation of a launch site in the territory of a foreign nation by a United

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[52] 49 USC App 2603. On the notion of controlling interest see *supra* Chapter 2 B, b).

[53] Senate Report 98-656. 98th Congress 2nd Sess,2 Reprinted in 1984, US Code Cong & Admin News 5336.

States citizen in the sense of subparagraph C of section 4(11)[54]. Indeed, when there is no State jurisdiction over the place where the launch takes place, it is understandable that the United States seek to control the activities of an entity controlled by US interests. But here, the situation is different. Here, there is sovereignty of a State in the place where the launch is to take place. The entity, even though it is controlled by US interests, is under the sovereignty of the concerned State. Thus, in principle, in that case, no license has to be sought from the US DOT, as a consequence of the principle that there cannot be extraterritoriality of US law.

However, this principle has an exception. If there is an agreement in force between the concerned State and the United States, which provides that the United States shall exercise jurisdiction over the launch of a launch vehicle or the operation of a launch site in the territory of the concerned State, US citizens, in the sense of subparagraph C of Section 4(11) shall obtain a license from the US DOT to enter such activities[55].

Document 3 (see Annex) gives a schematic view of all those cases.

Those provisions are aimed at protecting the United States wherever their liability could be engaged. However, in so doing, they provide for extraterritorial

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[54] CSLAct Section 6 (a) 3 (B) (i).

[55] CSLAct Sect 6 (a) 3 (B) (ii).

application of the US law in some instances[56]. The non-extraterritorial application of the US law has been respected as far as the case of entities of Subparagraph C of Section 4(11) CSLAct, launching from foreign territory, is concerned. For them, if there is no agreement between the foreign State and the United States giving jurisdiction to the USA, no license has to be required from the launch operator by the OCST. However, such is not the case for US Citizens of Subparagraphs A and B. For them, wherever they launch from, even in foreign territory, they have to obtain a license from OCST. No exception is provided to this rule. This extraterritorial application of the US law might create situations of conflict. Indeed, the US Citizen who wants to launch from a foreign territory may have to comply with:

- the US law
- the law of the State where the launch is to take place.

Those regulations might enter into conflict with respect to some of their provisions. This might, thus, prevent the launch by the US entity. In one area, this type of conflict is very likely to occur: national security and foreign policy interests. If both legislations require that the launch complies with these interests, conflicts may arise: the USA and the foreign State do not necessarily have the same interests. Thus, one may authorize the launch while the other prevents it. To date, it seems that no such conflict has occurred.

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[56] E.J.Steptoe, "Regulation of Private Commercial Space Transportation by the United States Department of Transportation", (1985) 28 *Colloquium*, 240-246, at 242.

With respect to the provisions of Section 6 CSLAct, another concern can be expressed. Foreign subsidiaries, that is US Citizens of Subparagraph C, do not need to obtain a US license if they launch from the territory of a foreign State, providing that there is no agreement between that State and the USA attributing jurisdiction to the USA. The foreign State is supposed to exercise jurisdiction and control over the company. But if that State did not issue regulations and is not a party to the Outer Space Treaty, what is the situation?[57] It seems that there is a gap in that case. If a third State has been victim of some damage because of the launch, it will have difficulties to hold liable the State where the launch occurred[58]. So, the State victim might turn to the USA and ask it for damages. Indeed, the company having caused the damage is controlled by American interests. This link may turn out to be sufficient to ask for damages from the USA. The USA could then be in the situation of being answerable for damages while it did not license the activities of the company responsible for the damage, and thus did not have an opportunity of checking all aspects of the mission. But this is just an hypothesis and no such case has been faced in practice so far.

Finally, it should be noted that provisions of the Act are not applicable to all launch activities carried out by or on behalf of the United States. Thus, Section 21 c) of the Act states:" Nothing in this Act shall apply to -

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[57] M.Howald, "Private Space Activities and National Legislations", (1989) 32 *Colloquium*, 344-347, at 345.

[58] Of course, there is always the opportunity to seek the liability of the State under customary international law.

(1) any -

(A) launch or operation of a launch vehicle,

(B) operation of a launch site, or

(C) other space activity,

carried out by the United States on behalf of the United States[59];

or

(2) any planning or policies relating to such launch, operation, or activity"[60]. The provisions of the Act do not apply either to amateur rockets[61].

E.- LICENSING PROCESS

The Commercial Space Launch Act itself does not provide for detailed regulations regarding the licensing process. It consists in a general framework within which the Secretary of Transportation, through the OCST, is to issue regulations on this matter. Sections 7 (Authority to issue and transfer licenses)[62], 8 (Licensing requirements)[63], 9 (License application and approval)[64], 13 (Regulations)[65], as

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[59]It seems that differences have arisen between DOT, the Air Force and NASA about the need for licensing NASA or DOD procured launches on a commercial basis. (Information obtained from P.D. Nesgos. No public sources of information are available on this matter)

[60] 49 USC App 2620. 14 CFR 400.2.

[61] 14 CFR 400.2. The definition of "*amateur rocket*" is given in 14 CFR 401.5.

[62] 49 USC App 2606.

[63] 49 USC App 2607.

well as Section 5 (General responsibilities of the Secretary and other agencies)[66], are the basis of the authority of the Secretary of Transportation and the guidelines provided to him, in order to issue detailed rules relating to the license process.

One particulary important principle should be noted here because the Act stresses its importance in a number of provisions, as being the central idea of the whole system. This principle is that, in carrying out the Act, the Secretary should always keep in mind the importance given to the protection of public health and safety, safety of property, and national security interests and foreign policy interests of the United States[67]. As far as licensing procedures are concerned, the Act repeats this principle. In Sect 7, it is stated that the Secretary of Transportation may issue or transfer licenses " *consistent with the public health and safety, safety of property, and national security interests and foreign policy interests of the United States*". Section 8 (a) (2), (b) and (c)[68] also recalls this principle that the Secretary has to take into account when he decides either to consider a requirement of Federal law not necessary for issuing licenses, or to prescribe additional requirements, or waive

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[64] 49 USC App 2608.

[65] 49 USC App 2612.

[66] 49 USC App 2604.

[67] This principle is stressed from the very beginning of the Act in Section 2 (7), Section 3 (3), as a general purpose of the Act and one of the underlying ideas considered important by Congress.

[68] 49 USC App 2607.

the application of any requirement[69]. However, if the protection of public health and safety and the safety of property is quite a clear notion, such is not the case as far as national security interests and foreign policy interests of the United States are concerned. These latter notions may be interpreted very widely, and could give the Secretary extensive authority in the course of the licensing process. Actually, when the DOT issued regulations relating to the licensing process[70], it received some comments expressing concern about the fact that this expression is undefined, particularly as far as news gathering and distribution are concerned[71]. The DOT did not consider this concern as so important and answered: " *The Act expressly commits to the Departments of State and Defense, respectively, responsibility for defining such interests in the context of individual license applications and for informing the Secretary of Transportation of their significance. It is not intended or anticipated that national security or foreign policy interests would be casually invoked by these*

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[69] It will be seen later that the principle discussed here is also important with respect to other stages of the launch process.

[70] See further.

[71] " One commenter expressed concern that uncertainties created by undefined references to national security and foreign policy interests could have a substantially chilling effect upon the exercise of protected First Amendment rights. That is news media organizations seeking to place satellites in orbit or to lease transponder capacity might be deterred due to this concern. Specifically, such uncertainties could thwart efforts to secure commitment of the substantial amounts of investment capital needed for the launch activities associated with such undertakings. Thus, this legislative vagueness could indirectly deter the exercise of constitutionally protected activities involving news gathering and distribution. In this context, the commenter asserted, Mission Review could ultimately become a vehicle for effecting prior restraint on free speech". (1986) 51 *Fed Reg* 6871

agencies as a reason for preventing a launch"[72].

Another comment was also addressed to the DOT relating to the scope of application of the principle. It argued that the authority of the DOT (OCST) " *to weigh national security and foreign policy interests in connection with private space launches does not encompass factors associated with the operations of a payload to be launched*". The commenter, relying on the wording of the Act "*suggested that the Office's regulatory procedures focus only on the national security and foreign policy implications attending the proposed launch of a payload and not on the payload's operation in orbit* ". The DOT expressed doubts about this interpretation and answered that " The Act gives the Office authority to determine whether the launch of a payload is inimical to the national interests specified in the Act and does not exclude any relevant factor from the Office's consideration. Thus, the Office will exercise its authority by determining whether any circumstances exist under which the proposed launch of a payload would jeopardize national interests"[73]. Comments were also received by the DOT on the Interim Final Rule. The OCST had, consequently, to deal with this issue again. " *The Office wishes to emphasize again the guiding principle established by the Commercial Space Launch Act in this area: the "provision of launch services by the private sector is consistent with the national security interests and foreign policy interests of the United States and would be facilitated by stable, minimal and appropriate guidelines that are fairly and expeditiously applied". As*

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[72] *id.op.cit.*

[73] (1986) 51 *Fed Reg* 6871.

the Agency charged with implementing the Act, the Department of Transportation views this passage as forming the basis for a presumption that proposed commercial launch activities are consistent with national interests. Thus, the purpose of the licensing process, in so far as national security and foreign policy issues are concerned, is to identify and, whenever possible, ameliorate specific problems with a proposal, not to determine that each and every proposal is generally consistent with those interests"[74].

It is the responsibility of the Secretary of Transportation, through the Office of Commercial Space Transportation (OCST) to issue such regulations as may be necessary to carry out the Commercial Space Launch Act, under Section 13 of the Act[75]. Accordingly, the Department of Transportation issued regulations with respect to the licensing process. On February 25, 1985, a Notice of Policy on Licensing Process for Commercial Space Activities was issued by the Office of the Secretary of Transportation[76]. The purpose of this Notice was to describe "*the licensing policies and procedures that DOT considers to be the most effective means of satisfying the Secretary's statutory mandate to oversee and coordinate non-governmental space launch activities*"[77]. The DOT intended this Notice to "be relied upon as interim guidance by license applicants pending the promulgation by DOT of

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[74] (1988) 53 *Fed Reg* 11005.

[75] 49 USC App 2612.

[76] (1985) 50 *Fed Reg* 7714.

[77] (1985) 50 *Fed Reg* 7714.

regulations implementing the Act"[78]. The Notice contained the basic principles elaborated by the DOT for licensing of commercial space transportation. The DOT called for comments on this Notice. The Department of Transportation implemented its authority through this Notice of Policy until February 26, 1986.

Eventually, both the comments received by the OCST, and the need for detailed regulatory guidance upon which prospective applicants can immediately rely, led the OCST to replace the existing policy with new regulations. This was the purpose of the Interim Final Rule issued on February 26,1986[79]. This Interim Final Rule amended Title 14, Code of Federal Regulations, by adding a Chapter III providing for the regulations governing commercial space transportation. This Interim Rule was an important step in the licensing process development in the sense that it organized and codified the rules relating to the licensing process. The OCST also asked for further comments on these regulations.

Comments were received by the OCST on the Interim Final Rule. During that period of time, progress had been made on the development of contractual arrangements with respect to access of commercial launch firms to Government launch technology and safety services. Moreover, the Shuttle accident in 1986, modified dramatically the structure of the market and the American space policy.

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[78] (1985) 50 *Fed Reg* 7714.

[79] (1986) 50 *Fed Reg* 6870.

A new launch policy was announced by President Reagan in August 1986[80]. A Directive on National Space Policy was issued by the President on February 11, 1988. This Policy emphasized commercial launch services as an integral element of the transportation capability of the United States[81]. Eventually, as a consequence of those elements, a Final Rule was issued by the OCST on April 4, 1988[82]. According to the OCST, " *The regulations ... constitute the administrative framework for according each proposal to conduct a commercial launch activity a prompt, well defined, and thorough review. They also reflect the Office's on- going efforts to design a licensing program that will provide unqualified assurance to the public that private firms will operate safely and responsibly. This assurance is indispensable to the success of the American commercial launch industry*".

1) OVERVIEW OF THE LICENSING PROCEDURE

The licensing procedure is composed of four steps. First, an application has to be submitted by the operator of the launch vehicle to the OCST. The applicant must provide the OCST with all information necessary for the OCST to initiate the licensing process. After the application has been made, the licensing procedure is

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[80] This policy limited the Shuttle to certain missions, directed the DOT to develop payloads compatible with both expendable vehicles and the Shuttle, and directed that routine commercial payloads be launched by commercial launch firms.

[81] (1988) 53 *Fed Reg* 11004.

[82] (1988) 53 *Fed Reg* 11004.

divided in 3 steps:

- the OCST will conduct a safety review leading to the issuance of a safety approval;

- the OCST will conduct a mission review leading to the issuance of a mission approval;

- if both those approvals have been granted, the OCST will issue the license.

Document 4 (see Annex) is a diagram issued by OCST[83] which can provide for a general idea of the licensing process[84].

2) APPLICATIONS

The rules relating to applications procedure are set forth in 49 CFR Par 413.3 to 413.11[85].

a) Information required for applications.

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[83] (1985) 50 *Fed Reg* 7716.

[84] As we have explained above, new regulations have been adopted in 1986 and 1988. However, this diagram is still relevant because the basic features of the procedure have not been altered. For a brief overview, see also: E.J.Steptoe, "Regulation of Private Commercial Space Transportation by the United States Department of Transportation" (1985) 28 *Colloquium*, 240-246, at 245.

[85] (1988) 53 *Fed Reg* 11016.

In an Appendix to the regulations[86], the OCST provides for all information to be given by the applicant. It is subdivided in four types of information :

- general requirements
- information related to safety review
- information related to mission review
- information related to payload determinations.

In this paragraph, we will concentrate on the general requirements only. Specific requirements will be analyzed in the relevant paragraphs. Three general requirements are provided for[87]:

- Applications must be in writing and filed in duplicate with the OCST;
- The original of the application must be signed in accordance with 14 CFR Par.413.5. This requirement is related to the concern that the person signing such a document shall be empowered to act on behalf of the applicant[88].
- The application must contain
    * name and address of the applicant
    * name, address and phone number of person(s) with whom the OCST will have to correspond (in particular the counsel of the applicant).

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[86] (1988) 53 *Fed Reg* 11011.

[87] (1988) 53 *Fed Reg* 11011. Appendix. I (A), (B) and (C).

[88] Par. 413.5 (c) provides that " Applications shall be signed as follows:
1) For a corporation. By an officer authorized to act for the corporation on licensing matters.
2) For a partnership or a sole proprietorship By a general partner or proprietor, respectively; or
3) For an association or other entity. By a principal executive officer.

b) Pre-application consultation

It is the spirit of the whole legislation to facilitate the obtention of licenses and, because of the nature of launch activities, especially the timing considerations, the OCST has provided for a system of "Pre-application Consultation"[89].

"Applicants are encouraged to consult with the OCST at the earliest planning stages" in order:

- to modify the proposal if problems are encountered;
- to avoid the delays and costs that would be caused by those problems;
- to precise informational requirements in order to facilitate the review.

Applicants will consult with the Director who will assist them in preparing their applications and in contacting Government agencies involved in the review process to discuss the prospective application.

This procedure allows the operators of launch vehicles to initiate very early the licensing process so that they can adapt without delay (and financial costs) to the possible requirements of the OCST. The preparation of the launch and the licensing process thus progress simultaneously, adaptations are made to meet the requirements and the review procedures can be expedited in a shorter amount of time.

c) Applications

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[89] 14 CFR Par 413.3.

Two types of applications can be submitted, as far as launch operations are concerned:

- application for issuance or transfer of a license authorizing a launch;
- application made separately and in advance of a license application, requesting an approval or determination that must be secured before a license can be issued or transferred.

This second type of application is to be distinguished from the pre-application consultation. The pre-application consultation consists of discussions, with a view to making sure that each step of the preparation of the launch complies with the requirements of the OCST. In the advanced application, the applicant does not seek only assistance, but a formal decision of approval, or determination, relating to one component of the launch operations. For example, he may wish to make sure in advance that the type of launcher he wants to use would be approved by the OCST, and make the necessary changes required by the Office.

According to the OCST, the Office will accept applications for safety review, mission review, or for a determination that the launch of a payload covered by Section 6 (b) (2) of the CSLAct will not be prevented, independent of one another and before submission of an application for a license. The fact that safety and mission approvals may be requested separately and in advance results from Par.415.5, referring itself to Par 415.15 (safety approval) and Par 415.23 (mission approval).

If such advanced application procedure has been followed, it will, under Par

415.7, be made part of the licensing record. Consequently, when the applicant requires definitively the license to launch, all previous approvals and determinations remain valid, unless substantial changes have been made in the course of the preparation of the launch[90].

The pre-application consultation, the advanced application and the possibility to conduct safety and mission reviews independently of each other are the result of the requirements of the CSLAct asking the Secretary to "encourage, facilitate and promote commercial space launches by the private sector"[91], and of the OCST's efforts to comply with these basic guidelines. The major idea is to make the licensing process as simple as possible and as fast as possible. These procedures should not be a burden for the applicants and they should match closely with the preparation of the launch.

d) Review of applications

The OCST will accept an application for review only if it contains all information required[92]. We have mentioned above the general information

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[90] 14 CFR Par 415.7 (b).

[91] 49 USC App 2604.

[92] 14 CFR Par 413.9. (1988) 53 *Fed Reg* 11016.

required[93]. Apart from this information, specific information is required to be provided, according to the nature of the decision sought (license, determination, mission approval, or safety approval). These requirements are detailed in Appendix to the regulations[94]. The OCST chose not to publish these requirements in the regulations because they will need to be updated frequently, according to the results of the OCST's research and consultations, as well as the licensing practice. " *So that prospective applicants are assured of having ready access to the most current and accurate version of the Office's information requirements, they will be set out in a separate document that will be available upon request*"[95]. Thus, as each launch has its own particular features, the OCST gives the opportunity to applicants to obtain the list of information they should provide by simply writing or phoning the OCST[96]. This possibility was not provided for in the Interim Final Rule. The OCST added this amendment so that applicants can make sure of the elements they have to include in their application, in order to avoid unnecessary delays. No particular format has been prescribed by the OCST for submitting applications and information. As the OCST explains in its analysis of the regulations " . . *although the requested data must be provided for an application to be considered complete, the Office has not prescribed any particular format for submitting it. Because commercial*

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[93] See 2) a) supra.

[94] They will be examined with relevant subjects.

[95] (1988) 53 *Fed Reg* 11009.

[96] 14 CFR Par 413.9 (a). (1988) 53 *Fed Reg* 11016.

firms may develop new approaches to the design of launch vehicles, the delivery of launch services or the location and organization of launch operations, information submissions may reflect the unique structure or organization of their launch operations"[97].

However, if an application is considered by the OCST to be incomplete, it will be returned to the applicant to be completed[98]. Then, when the application is complete and accepted by the OCST, the Office initiates the review. This means, in particular, that the review process is the responsibility of the Office, and not of the applicant. This is the translation in the regulations of an idea that was emphasized from the beginning of the reform: the leading role of the DOT and the notion of one-stop shopping. Here, the regulations[99] provide that the office initiates "an appropriate review". By using the word "appropriate", the OCST intended to insure that "each review is tailored to the application's particular characteristics". There is no standard review. Even though the Office developed general regulations, in many respects, the licensing procedure remains a case by case process[100].

Until the issuance of the Office's decision, any modifications, supplements or corrections can be made to the application[101].

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[97] (1988) 53 *Fed Reg* 11009.

[98] 14 CFR Part 413.9 (c). (1988) 53 *Fed Reg* 11016.

[99] 14 CFR Par 413.9 (d). (1988) 53 *Fed Reg* 11017.

[100] (1988) 53 *Fed Reg* 11010.

[101] 14 CFR Par.413.11. (1988) 53 *Fed Reg* 11017.

When the application is accepted by the OCST, safety review and mission review are initiated leading to the grant of safety approval and mission approval. No license can be issued without those approvals being secured. As we have noted previously, and this has to be kept in mind, if those approvals are sought prior to the submission of a launch application, they will be made part of the record of the applicant. When the latter will apply for a license, the concerned review will not be conducted again, unless changes arise in the situation[102].

3) SAFETY REVIEW

Subpart B of Part 415 deals with the safety review and Par 411.5 with the safety approval.

a) Role of the safety review

As the OCST explained in its Notice of Policy, 1985, the reason why safety of launches has to be secured is that " *As with other transportation systems, the Government has a responsibility to protect the public against any unreasonable risks that space launch activities might pose to either life or property*"[103]. The United States also have their own interest to protect. By controlling the safety of the launch, they

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[102] (1988) 53 Fed Reg 11010, and 14 CFR Par 415.7, 415.17, 415.25.

[103] (1985) 50 *Fed Reg* 7717.

reduce the possibilities of damage leading to their international responsibility according to the Outer Space Treaty and the Liability Convention.

The definition of the safety review given by the OCST in Par 415.11 provides for both the role of the safety review and its major components.

** Role of the safety review.*

The safety review aims at determining whether an applicant can safely conduct the preparation and launch of the proposed launch vehicle and any payload. Basically, the OCST will try to ascertain that the safety measures taken by the applicant can assure a level of safety comparable to that achieved at national ranges[104]. However, the OCST concentrates on the safety elements of the launch operation and the safety systems of the vehicle. The OCST considers that "the reliability of the vehicle in a non-safety context will be the responsibility of the launch vehicle manufacturers"[105].

** Major components of the safety review*

Four major elements of safety are examined by the OCST during the safety review[106].

- Launch site. The OCST will ensure that off-site persons and property are not

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[104] (1985) 50 *Fed Reg* 7717.

[105] (1985) 50 *Fed Reg* 7717.

[106] 14 CFR Par 415.13. (1988) 53 *Fed Reg* 11018.

exposed to unreasonable risk of harm. The elements examined are : location, size and design configuration of the launch site.

- Procedures. The quality of the following elements is examined :

    # Pre-launch check out

    # Validation of all launch safety systems (ground/flight)

    # Control of pre-launch and launch hazards to the public

    # Trajectory flight safety analysis

    # Safe flight operations from ignition through impact of suborbital launches and through orbital injection or escape velocity for orbital launches.

- Personnel. Qualification of the range safety personnel is examined as well as their training and experience.

- Equipment. The safety of range and vehicle equipment is examined.

b) Information required from applicants

An extensive list of information to be provided is contained in Appendix to the regulations. This information will allow the OCST to review the safety of the operations proposed by the applicant.

Since the first regulations issued by the OCST, it was made clear that a distinction would be made between launches from Federal (or licensed) launch sites and other launches. In its Notice of Policy, 1985, the OCST underlined that if the applicant chooses to launch from an established national range, the number of safety

issues to be addressed by DOT would be reduced. Indeed, on those sites, reliable safety procedures are already in place. Thus Par 411.5 states "*...it is the Office's view that reliance on safety related launch property and services found at these ranges is an appropriate means of assuring that the applicants's launch activities can be conducted safely*". Consequently, it was decided by the OCST that a statement of intention to launch from such range would be sufficient[107]. The Interim Rule recalled this difference and translated it in the regulations, in Par. 415.17. Information required for launches from sites other than national or licensed ranges are much more detailed than for the latter. The Final Rule, 1988, recalled this difference. However, it deleted the requirements from the regulations to incorporate them in the Appendix for the reasons we have already explained above[108].

Consequently, the current regulations, in their Appendix, provide for two cases[109]:

- launches from Federal or licensed launch sites
- other launches.

For the first category, the documents to be provided are basically a statement of the launch range operator that he has accepted the applicant, and further information relating to possible responsibility or risk assumed by the applicant himself. The title of this category mentions two types of launch sites : Federal launch

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[107] (1985) 50 *Fed Reg* 7717.

[108] See 2) d) Supra.

[109] (1988) 53 *Fed Reg* 11011.

sites; licensed launch sites. It is to be noted that, up to now, the only sites with pre-approved safety operations are Federal launch ranges[110]. No private launch site is in operation even though some are in project[111].

For the second category, information to be provided are much more numerous. The applicants have to provide all safety information that will allow the OCST to evaluate the safety of their operations. The OCST details information it considers necessary. However, since each case is different, the list for both categories cannot be exhaustive[112]. The information required for both categories are detailed in document 5 (see Annex).

It is noted that in case the launch is to take place at a Federal (or licensed) range, the OCST will condition the license upon the requirement that the applicant complies with safety requirements and procedures of the range, and that he informs the Office of, or obtain approval for any deviations from or alternatives to those requirements and procedures[113].

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[110] (1988) 53 *Fed Reg* 11010.

[111] In United States, space launch sites operated by States (and not really private, even though independent from national ranges) are in project in Florida and in Hawai. See: D.J.Marcus, "Spaceport Florida Ready to Buy Rockets" June 11-17 1990 *Space News*,32 and, Office of Space Industry of Hawai, "Hawai's Proposed Commercial Launching Facility", 1990. On launch sites see: S.Lessard & F.Nordlund, "Les bases de lancements:Evolution et aspects juridiques", 1990 Vol XV *Annals of Air & Space Law*, 359-400.

[112] 14 CFR Par.411.9. (1988) 53 *Fed Reg* 11016. "... These information requirements are not intended to be all inclusive and the submission of the required information does not, in itself, demonstrate the qualifications of an applicant. The nature of individual proposals may require the submission of additional information".

[113] 14 CFR Par. 411.5. (1988) 53 *Fed Reg* 11016.

It is also to be noted that the OCST is developing safety standards or requirements for commercial launch activities. They will allow for a standard treatment of safety reviews. In the meantime, safety reviews have to be conducted on a case by case basis[114].

c) Payloads

As far as payloads are concerned, in the course of the safety review, the OCST will ensure that the applicants possess the adequate resources and capabilities to conduct safely the payload related operations as part of the process of preparing and launching the launch vehicle[115].

As far as safety review is concerned, no major comment has been received by the OCST.

4) MISSION REVIEW

Mission Review brings more difficulties than Safety Review because of its

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[114] (1988) 53 *Fed Reg* 11008.

[115] (1988) 53 *Fed Reg* 11009.

national security aspects even though the procedure, in itself, does not seem to be more cumbersome than that of the Safety Review. Many comments were received by the OCST with respect to Mission Review.

a) Purpose of the Mission Review

As we have stressed a few times already, the aim of the licensing process is to make sure that activities of private launch operators remain within the international obligations of the United States, particularly as far as the Outer Space Treaty and the Liability Convention are concerned. Safety Review examines compliance with these obligations only as far as safety of operations is concerned. As the OCST explains: " *This direct liability forms the basis for a broad interest in proposed private space launch activities, one which intends beyond safety issues to include both the purpose of the launch and the nature of the payload. This unique interest in the launch mission distinguishes regulation of commercial space launch activities from regulation of other modes of transportation*"[116]. Consequently, the role of the OCST is not only to check the safety issues but all other elements susceptible of interfering with the treaty obligations of the United States This view has been contested in some of the comments received by OCST. "*These comments contended that responsibility/accountability and liability for damages are purely safety concerns. As such, according to these respondents, they provide no basis for any federal interest in*

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[116] 50 *Fed Reg* 7717.

the mission review factors specified in the Notice. Safety concerns, they maintained, could be more than adequately addressed in the context of Launch Safety Review"[117]. The OCST did not discuss that matter, for it obviously does not agree with it.

As stated in 14 CFR Par 415.21, the scope of the Mission Review is the following: "*Mission review is the procedure for identifying significant issues affecting United States national interests and international obligations that may be associated with a proposed launch. Except for safety operations covered by Par. 415.11-415.17 of this part [Part 415], Mission Review covers all aspects of a proposed launch, including any payload to be launched. For a payload not subject to FCC or NOAA regulation, the Office must determine whether to prevent launch of the payload because to launch it would jeopardize public health and safety, the safety of property, or any national security or foreign policy interest of the United States*"[118]. As can be understood from this quotation, the two major subject matters with respect to Mission Review are : compliance with international obligations as well as the national security and foreign policy implications of a given launch/payload. As a matter of fact, it is on these subjects that most of the comments were received by OCST.

Indeed, one of the major concerns that can be noted in the comments received by the OCST relates to the definition of "US national security or foreign policy interests". Both after issuance of the Notice of Policy and the Interim Final Rule, a number of comments were received by the OCST on this particular subject

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[117] 51 *Fed Reg* 6970.

[118] 53 *Fed Reg* 11018. 14 CFR Par 415.21.

Neither the Commercial Space Launch Act nor the OCST regulations define what is meant by "US national security or foreign policy interests". It was felt by a number of commentators that, for various reasons, this vagueness could lead to some difficulties.

One of the concerns expressed was that Mission Review could "*become a vehicle for effecting prior restraint on free speech*"[119]. This question need not be examined again for it has been dealt with previously[120]. This comment was made to both the Notice of Policy and the Interim Final Rule[121]. An example of foreign policy consideration could be the risk of interference with another nation's use of space. A national security concern could be the prevention of collisions between proposed payloads and classified Department of Defense satellites[122]. Mr Straubel also expressed some concern about the vagueness of the definition: "*The constantly changing definitions of "national security interests" and "foreign policy interests and obligations" may make the advanced planning necessary for space activity very difficult. For example, a joint venture in materials processing between a United States firm and a foreign firm may be acceptable one year, but may run afoul of national security or foreign policy interests the next year because the foreign firm may come from a now*

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[119] 51 *Fed Reg* 6871.

[120] See Chapter 2. E).

[121] 51 *Fed Reg* 6871 & 53 *Fed Reg* 11005.

[122] M.S. Straubel, "The commercial Space Launch Act: The Regulation of Private Space Transportation", (1987) Vol 52 *Journal of Air Law and Commerce*, 941-969, at 958.

unfriendly country. An applicant could obtain mission approval early in a project, but find that mission approval withdrawn when the time comes for issuance of the final license. Such reliance could result in substantial losses. The uncertainty created by the vague terms "national security interest" and " foreign policy interests and obligations" could chill investment in private space activity Unambiguous criteria and guarantees of continued acceptance and validity need to be put into the mission review process"[123].

However, one point needs to be emphasized here. The regulations[124] provide that "*Mission approval is granted unless some element of the proposed launch poses a threat to US national security or foreign policy interests, constitutes a hazard to public health and safety or safety of property, or is inconsistent with international obligations of the United States*". This provision seems to put the burden of proof on the OCST. Thus it is not for the applicant to demonstrate that his mission, and particularly the payload, complies with all the requirements, but for the OCST to establish the reasons why the approval cannot be granted[125].

The Commercial Space Launch Act, in its section 20 a), b) and c) asks the Secretary of Transportation (by delegation the OCST) to consult the Secretary of Defense on all matters affecting national security, and the Secretary of State on all

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[123] M.S. Straubel. *op. cit.*, at 360.

[124] 14 CFR 411.7. 53 *Fed Reg* 11016.

[125] See P.L. Meredith, "A Comparative Analysis of United States Domestic Licensing Regimes for Private Commercial Space Activities" (1989) *Colloquium*, 373-381, at 377.

matters affecting foreign policy and other agencies as he thinks appropriate. These provisions called the attention of some commentators. Some of them "*expressed some apprehension that these consultations might not occur in good faith and that they may provide a means by which agencies conducting their own commercial space activities could protect their competitive interests*". The OCST explained its intention to make sure that Mission Review affords no such opportunity. "Mission Review is designed expressly to prevent the interagency review process from becoming an unbridled opportunity for agencies to judge, in areas beyond their particular competence, whether proposed launch activities conflict with national interests"[126]. As far as consultation is concerned, another question might arise. The consultation of most agencies is not compulsory for the OCST, it is just "as appropriate"[127]. But the Act mandates consultations with the Department of State and the Department of Defense[128]. As the criteria of "national security interests" and " foreign policy interests or obligations" is vague, the conclusions of the OCST, DOS and DOD may be different, and even divergent. Will any conclusion prevail on others and what about arbitrating the dispute? No satisfactory answer has been given to that question. As Mr Straubel states: " *[. .] the White House will have the final say on disputed matters of national security and foreign policy. Nevertheless, the potential delay and uncertainty created by this unstructured consultation scheme is bound to impede*

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[126] 51 *Fed Reg* 6871.

[127] CSLAct Sect 20, c).

[128] 51 *Fed Reg* 6871.

the development of a private launch industry and an efficient regulatory regime"[129].

b) Information requirements for Mission Review

As we have explained previously, since 1988, these requirements are provided for in annex to the regulations[130]. As far as Mission Review is concerned, the applicant must give the following information to the OCST[131]:

- description of the launch vehicle and location of the launch site.
- flight plan and staging data sufficient for evaluating such factors as the potential for land overflight, impacts of spent stages, and debris issues.
- identification of any unique hazards that may be posed by the launch derived from the nature of materials to be launched or potential abort or reentry hazards.
- nature and ownership of any payload to be launched.
- proof of license given to the payload by either FCC or NOAA or, for non licensed payloads, indication whether the OCST has made any determination on the payload[132].

Elements such as flight plan, impacts of spent stages, debris issues and nature of materials to be launched are not examined from a safety point of view, but the

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[129] M.S. Straubel, *op. cit.*, at 963.

[130] In this paragraph we will not deal with information related to non licensed payloads. This will be examined further, in paragraph d).

[131] 53 *Fed Reg* 11012. 14 CFR Annex to the regulations

[132] 14 CFR 411.7, 415 21, 415.23.

aim is to determine to what extent the proposed launch interferes with other uses of space.

Other elements such as nature and ownership of the payload are mainly used to assess the possibility to launch such a payload from the standpoint of national security and foreign policy.

c) Review and payloads determinations

During the Mission Review, all aspects of the launch will be examined and the OCST will identify significant issues affecting United States national interests and international obligations that may be associated with the launch[133]. As 14 CFR 415.21 stresses, "*Except for safety operations covered by 415.11-415.17 of this part, Mission Review covers all aspects of a proposed launch, including any payload to be launched*". This can be interpreted as meaning that Mission Review could be dealing with all sorts of issues that are not dealt with in Safety Review and that may have no interference with national security or foreign policy interests of the United States. Mission Review would thus encompass some sort of residual category of issues.

In fact, the most important part of the Mission Review relates to the payload to be launched[134]. With respect to payloads, the procedure followed by the OCST

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[133] 14 CFR. 415.21. 53 *Fed Reg* 11018.

[134] Indeed, in most cases, the purpose of the mission is to place a payload into orbit.

is different depending on the nature of the payload. Actually, in the Final Rule, the OCST clarified this aspect in response to some comments expressing concern that as drafted in the Interim Final Rule, the regulations suggest some possibility of redundant regulations for payloads regulated by FCC or NOAA. Thus, the first step in the procedure is to determine the nature of the payload that the applicant wishes to launch. There are two possibilities:

1) The proposed payload is subject to existing payload regulations.

To date, there are two cases of that nature. The FCC has authority to license communications satellites and the Department of Commerce (NOAA), remote sensing satellites[135]. The Commercial Space Launch Act did not alter the authority of these agencies[136]. In those cases, the OCST will require that the appropriate license is secured before authorizing the payload to be launched. The OCST emphasized that it " *will not examine any issues pertaining to payloads licensed by the FCC or NOAA before license application is made to either of those agencies or during the pendency of any review of a license application at either agency*"[137]. This respects fully the authority of those agencies. But it is also a practical matter. Especially, for

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[135] For an overview of both those procedures see Doc 6 (see Annex).

[136] CSLAct 49 USC App 2605 (c) (2): " Nothing in this Act shall affect the authority of the Federal Communications Commission under the Communications Act of 1934 (47 USC 151 et seq) or the authority of the Secretary of Commerce under the Land Remote-Sensing Commercialization Act of 1984 (15 USC 4201 et seq)". See also OCST regulations: 14 CFR 413.17. 53 *Fed Reg* 11017.

[137] 53 *Fed Reg* 11009.

communications satellites an important number of issues has to be dealt with by FCC in order to grant the license for the construction and operation of the satellites. As long as those issues are not settled, it does not seem very appropriate to initiate a launch mission review.

Thus, the OCST has no authority to license communication and remote-sensing satellites. It has also no authority to examine issues that have been dealt with during the FCC or NOAA licensing process[138].

About the FCC licensing authority, some comments of the Senate Committee on Commerce, Science and Transportation are worth noting: "*The Committee recognizes that the Orders and Authorizations of the FCC are the official certification for the launch of a communications satellite. Therefore, no separate documentation or certification by the Secretary of Transportation will be required. In order to address the procedural time lag that may occur between the FCC's open meeting in which the actual authorization is written and released, the committee recognizes that the press release or other public notice of Commission action is sufficient notification that the communications satellite in question has met all regulations of Federal law that relate to the launch of a payload. In notifying DOT of the FCC's authorization to launch a communications satellite, the Committee notes that the transmittal of the authorization to launch by the FCC is appropriate. The bill reported here is intended to minimize the burden on agencies, such as FCC, DOT, and on those launching payloads. The*

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[138] 53 *Fed Reg* 11009.

Committee, therefore, directs DOT to implement the regulations with this goal in mind"[139].

2) The proposed payload is not subject to existing payload regulations

In such cases, encompassing non-regulated domestic payloads and all foreign payloads, the Office will have to initiate a review for the proposed payloads. The Office takes its authority on that matter from the Commercial Space Launch Act itself. Indeed in its Section 6 (b) (2)[140]: " *If no payload license, authorization, or permit is required by any Federal law, the Secretary may take such action under this Act as the Secretary deems necessary to prevent the launch of a payload by a holder of a launch license under this Act if the Secretary determines that the launch of such payload would jeopardize the public health and safety, safety of property, or any national security interest or foreign policy interest of the United States*". This has been provided for in the regulations under 14 CFR 411.7. Two points are worth noting here. Firstly, it is possible for payload operators or owners to ask the OCST to make the payload determination in advance of the request for license or request for mission approval. This is quite logical. The payload is the central element of the whole mission. Consequently, before entering the launch license process, it is important to know whether the proposed payload can be launched. Secondly, as far as payloads are concerned, the OCST made a first step towards some kind of

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[139] Senate Report 98-656, 98th Cong, 2d Sess (1984), 98 Stat 5334, p 10.

[140] 49 USC App 2605.

generic license or standard license. Thus, the OCST states[141] that " *Subsequent reviews of payloads within the same category shall be considered on a routine basis and shall focus on new or distinctive elements of the specific payload to be launched*".

The information required by OCST from the applicant, in order to initiate payload determination, are the following:

- An assessment of safety issues anticipated by the applicant
- A statement of the number of missions planned for payloads of the same or similar design
- A description of the design and construction plans of the payload
- A description and definition of the proposed orbit, including altitude and inclination.

As is mentioned in the annex to the regulations, as well as in the regulations themselves[142], this list of required information is not exhaustive. Thus the Office might require additional information from the applicant according to the case. Applicants can also ask the Office to provide them with an up-to-date list of required information.

d) Comments on Payloads

Quite a few comments have been received by the OCST about its regulations

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[141] 14 CFR 411.7.

[142] 14 CFR 411.9. 53 *Fed Reg* 11016.

with respect to payloads questions.

One of the comments was that the OCST had authority to weigh national security and foreign policy interests only as far as the launch is concerned, and not with respect to the operation of the payload in orbit. The commentator relied on the language of the Act that did not give express authority to the Secretary of Transportation with respect to the latter. The Office did not agree with this interpretation of the Act and stated that it would consider all matters related to the launch[143]. In fact, this is the only possible answer to that comment. Indeed, if one denies the OCST the authority over the operation of payload in orbit, the whole purpose of the regulations is challenged. Of course, the regulations aim at helping the space launch industry, but it is also, and probably more, to protect the interests of the United States where its liability might be engaged. Consequently the operation of a payload in orbit is obviously in the sphere of authority of the OCST. Indeed, it may interfere with activities of other States, cause damage to other spacecraft, pursue aims that are in contradiction with international law and space law in particular. All of these can put the United States in such a situation that it will be answerable for damages. Thus, it is quite obvious that where the liability of the United States is in question. the OCST would not let private enterprises operate any kind of payload without any control.

Some other comments were related to the concern that the review of each payload might be too cumbersome in routine launches, especially for payloads that

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[143] 51 *Fed Reg* 6871.

consist of components used to support ongoing activities in space. The Office reminded the commentators that one of its efforts would go to facilitate the launch process and that "Mission review will not interfere with routine space activities which do not adversely affect the national interests specified in the Act"[144].

The House Committee on Science and Technology also addressed some comments to the OCST. One of them can be analyzed here, though it refers to the definition of the term "payload". The Committee saw in the definition of payload as "objects" a possibility that this could create difficulties in the event of manned launch activities. The OCST considers that these activities would be in its sphere of activity. Indeed the Act does not restrict the expression "launch of a launch vehicle" to unmanned launches"[145].

d) Advanced Mission Review

In the same manner as for safety review, the regulations provide for an opportunity to apply for mission approval independently of safety review and of a launch license request. Similarly, payload determinations may be required in advance and independently of any other part of the launch license process[146]. Mission approval and payload determinations made in advance will be made part of the

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[144] 51 *Fed Reg* 6871.

[145] 53 *Fed Reg* 11006.

[146] 14 CFR 415.23. 53 *Fed Reg* 10018.

licensing record[147].

5) ISSUANCE OF THE LICENSE

Once reviews have been conducted, the Office will give safety and mission approvals and issue the license if it determines "that the applicant has, and will continue to have, the ability to comply with all requirements for a license, including the ability to conduct safe launch or launch site operations"[148].

The license issued by OCST is not a "blank" license. It is subject to a number of conditions determined by the OCST[149]. Under the OCST regulations[150] the license will contain the following elements:

- Specification of the activities authorized by the license
- Name of each person responsible under the license for the conduct of these activities
- Period of time during which the license is valid
- "Such other terms and conditions as may be required to protect public safety, the safety of property, and national security and foreign policy interests of the United

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[147] 14 CFR 415.25. 53 *Fed Reg* 11018.

[148] 14 CFR 413.13. 53 *Fed Reg* 11017.

[149] This opportunity to set conditions is given to the OCST by the Commercial Space Launch Act Section 9 (b) which provides : " The Secretary shall include in such license such conditions as may be necessary to ensure compliance with this Act,...". 49 USC 2608.

[150] 14 CFR 413.15, 415.9.

States". The regulations provide for the standard conditions that can be imposed by OCST. The main possible conditions are the following:

* Secure the minimum amount of third-party liability insurance specified by the Department[151].

* Adhere strictly to specified range safety regulations and procedures.

* Comply with requirements concerning pre--launch record keeping and notifications, including those pertaining to Federal airspace restrictions and military tracking operations.

* Comply with Federal inspection verification and enforcement requirements.

As the regulations provide[152], "Standard conditions in licenses include requirements for the licensee to do the following...". This implies that the above list of conditions is not exhaustive. The OCST may include other conditions that each case may require.

Finally the license is issued on the basis of the information provided to OCST by the applicant. Consequently, the license has a meaning only insofar as there is no change in some elements of the mission. It is not for the OCST to verify that the information given is always accurate. The applicant himself is responsible for constantly providing OCST with complete and accurate information. If this information is no longer accurate or if a very important change occurs that would influence the decision of the OCST, the applicant is responsible for giving the OCST

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[151] See Chapter 3 dealing with matters of insurance.

[152] 14 CFR 415.9. 53 *Fed Reg* 11018.

corrected information, as promptly as possible[153].

6) AFTER ISSUANCE OF THE LICENSE

a) Monitoring of licensed activities

Once the OCST has issued a license, it may wish to verify that the conditions set forth in the license are complied with and that the licensee conducts its activities as planned.

The Commercial Space Launch Act itself gives this authority to the Secretary of Transportation[154]. The OCST, which has been delegated this authority, issued regulations carrying out this provision. Some comments have been received by the OCST with respect to this monitoring. This needs not be developed here, since we have mentioned it previously[155].

* Persons allowed to monitor activities of the licensee

Three categories of persons can carry out the authority given to the OCST:

- Federal Officers
- Employees authorized by the Director of OCST
- other individuals authorized by the Director of OCST.

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[153] 14 CFR 413.19. 53 *Fed Reg* 11017.

[154] CSLAct Section 14. 49 USC 2613.

[155] See Chapter 2 C) 1).

* Locations

Both the Act[156] and the regulations[157] enumerate the places where the Office can exercise its monitoring authority. The regulations use the expression "...including launch sites...". The word "including" seems to mean that the list of locations set forth in the regulations might not be exhaustive, leaving room to the appreciation of the Office. However, the language of the Act is more restrictive by using "at"[158]. Authority has to be given to the Act, and, consequently, the exact interpretation is that the list of locations provided for in the Act and in the regulations is exhaustive.

The locations where the OCST may monitor the activities of the licensee are the following:

- any launch site used by the licensee
- any production facility or assembly site used by a contractor of the licensee, or the licensee himself in the production or assembly of a launch vehicle
- at any site where the payload is integrated with a launch vehicle.

* Conduct of the monitoring

The OCST is given quite wide authority on that matter. Under the Act and

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[156] Section 14 (a) (1). 49 USC 2613.

[157] 14 CFR 405.1. 53 *Fed Reg* 11014.

[158] Section 14 (a) (1): "to allow the Secretary to place Federal officers... at any launch site..., at any production facility..., or at any site where a payload is integrated..."

the regulations, there are two reasons why the OCST may monitor the activities of the licensee:

- to determine that the licensee complies with the terms and conditions of the license issued to him

- to carry out the Director's responsibilities pertaining to payloads for which no Federal license, authorization, or permit is required. These are the payloads which are not licensed by FCC or NOAA, but by OCST itself.

The monitoring can be conducted "at such time and to such extent as the Director considers reasonable and necessary"[159]. This leaves room to the appreciation of the OCST to a large extent.

The duty of the licensee is to allow the persons sent by OCST on the location and cooperate with them.

While commenting on the regulations, the OCST emphasized that "Monitoring will be conducted in the least intrusive manner possible and only for the purpose of determining whether such activities conform to applicable requirements"[160].

b) Modification, revocation, suspension of licenses. Emergency orders.

** Modification*

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[159] 14 CFR 405.1. 53 *Fed Reg* 11014.

[160] 53 *Fed Reg* 11008.

After the license has been issued, it might happen that some changes are brought to the launch mission, that obviously modify the terms of the license. In that case the licensee may apply to the OCST to modify the license. The OCST may also modify the license upon it own initiative[161]. Applications for modifications follow the same rules that application for the initial license[162]. Modification of the license is not merely the consequence of the non compliance of the licensee with any regulations or conditions, but it would occur in cases such as changes brought by the licensee to its operations.

** Suspension and revocation of license*

These two measures are different from the modification procedure in the sense that they appear as a sanction. Suspension or revocation may occur in five types of situations:

- the licensee did not comply with any requirement of the Act
- the licensee did not comply with any regulation issued under the Act
- the licensee did not comply with the terms and conditions of the license issued
- the licensee did not comply with any other applicable requirement
- public health and safety, the safety of property or any national security or foreign policy interest of the United States so requires[163].

** Time considerations with respect to modification, suspension or revocation of licenses*

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[161] CSLAct Section 10 (b). 49 USC 2609. 14 CFR 405.3 (a) 53 *Fed Reg* 11014.

[162] id.

[163] 14 CFR 405.3. 53 *Fed Reg* 11015.

The principle[164] is that modifications, suspension or revocation take effect immediately and remain in effect as long as the administrative review is going on[165]. The Office has a duty to notify the licensee immediately of any finding and action with respect to modification, suspension or revocation of the license[166]. In its report, the Senate Committee on Commerce, Science and Transportation emphasized: "The Committee recognizes that the immediate implementation of such an order might place a licensee at a financial disadvantage, which in some cases may be unwarranted, inappropriate, or detrimental to the licensee. Therefore, the Committee expects the Secretary to take into consideration , before rendering such an order, the nature and severity of any infraction or noncompliance relative to the act, the license, or applicable regulation. If the infraction or noncompliance is minor, and if the licensee can correct the infraction or noncompliance within a reasonable period of time after notification by the Secretary of the infraction or noncompliance, the Committee would expect the Secretary to delay the order to suspend, revoke, or modify. In this case, this "grace" period would allow the licensee a reasonable period of time to correct the infraction or noncompliance so that the licensee will not be needlessly disadvantaged by such an order"[167].

* *Emergency orders*

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[164] 14 CFR 405.3 (c). 53 *Fed Reg* 11015.

[165] On administrative review see further 9)

[166] 14 CFR 405.3 (d). 53 *Fed Reg* 11015.

[167] Senate Report No 98-656, 98th Cong, 2d Sess (1984), 98 Stat 5334, p13.

Emergency powers are given to the OCST[168]. They are limited to one type of situation: the OCST may use those emergency powers in case the launch or operation of a launch site is detrimental to public health and safety, safety of property, or any national security or foreign policy interest of the United States. This is furthermore restricted by the provision that even in that case, the OCST can exercise its authority only if the detriment cannot be eliminated effectively through the exercise of other authority of the Office. If such a situation occurs, the Office "may immediately terminate, prohibit or suspend a licensed launch or launch site operation". Some concern was expressed about these powers given to the OCST, especially because, as we have seen previously, the criteria upon which the intervention of the OCST is based is vague. The Commercial Space Transportation Advisory Committee called the attention of the OCST on that question. The OCST emphasized that " it views the exercise of this authority as an extraordinary measure to be relied upon in truly emergency circumstances"[169].

Under the CSLAct, such termination, prohibition or suspension takes effect immediately and remains in effect as long as the administrative review is going on[170].

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[168] CSLAct Section 11. 49 USC 2610. 14 CFR 405.5. 53 *Fed Reg* 11015.

[169] 53 *Fed Reg* 11008.

[170] CSLAct Section 11 49 USC 2610.

c) Penalties

Under the CSLAct[171], are unlawful: the violation of any requirement of the Act, of a regulation issued under the Act, or of any term, condition or restriction of a license.

Acts of non compliance with these rules are sanctioned by a civil penalty[172] of not more that $100,000 for each violation. A violation continued for few days constitutes, each day, a separate violation.

The OCST has authority to compromise, modify or remit penalties. The OCST is also given some judicial powers for the purpose of conducting hearings related to these violations.

d) Enforcement

Section 17 of the CSLAct gives the Secretary of Transportation (delegated to the OCST) the authority to enforce the Act. In order to exercise this authority, the Act gives the Secretary extended powers:

"(1) make investigations and inquiries, and administer to or take from any person an oath, affirmation, or affidavit, concerning any matter relating to enforcement of this Act; and (2) pursuant to any lawful process - (A) enter at any reasonable time

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[171] CSLAct Section 18. 49 USC 2617.

[172] 14 CFR 405.7. 53 *Fed Reg* 11015.

at any launch site, production facility, or assembly site of a launch vehicle, or any site where a payload is integrated with a launch vehicle, for the purpose of inspecting any object which is subject to this Act and any records or reports required by the Secretary to be made or kept under this Act; and (B) seize any such object, record or report where there is probable cause to believe that such object, record, or report was used, is being used, or is likely to be used in violation of this Act."

7) Registration requirements

A new regulation was added to the Final Rule with respect to registration of space objects in order to take into account compliance with the Registration Convention (Art IV)[173]. This provision reminds licensees that they are responsible for the registration of the space objects launched into outer space[174]. The Office requires each licensee to provide it, within 30 days of the launch, certain information related to the space object launched[175].

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[173] 14 CFR 415.10. 53 *Fed Reg* 11018.

[174] However, the provision recalls that licensees are not responsible for the registration of space objects owned by a foreign entity, these payloads being registered under the responsibility of that foreign entity. Indeed, the registration system is based on the notion of nationality of spacecraft. Each spacecraft has the nationality of the country on whose registry it is entered. Consequently a foreign payload must be registered on the registry of the relevant country. Nationality of spacecraft does not depend on the nationality of the launching entity.

[175] The information to be provided to OCST is as follows:
- International designator of the space object(s)
- Date and location of the launch

8) Environmental matters

The Office is required to consider the environmental impacts of licensing commercial launch activities and some information with respect to environmental consequences of launch operations must be provided by applicants to the OCST[176].

9) Procedures

a) Confidentiality

Both the Act[177] and the regulations[178] provide for treatment of confidential data. The person or agency furnishing data or information can designate them, or some of them, as confidential. A precise procedure has to be followed to designate these data as confidential. Once this procedure has been followed, such information will not be disclosed. Information which qualify for exemption under section 552 (b) (4) of title 5, United States Code, will not be disclosed either.

- Basic programmed orbital parameters including
  - * Nodal period
  - * Inclination
  - * Apogee
  - * General function of the space object.

[176] 14 CFR 415.31 and 415.33. 53 *Fed Reg* 11018.

[177] CSLAct Section 9 (c). 49 USC 2608.

[178] 14 CFR 413.7. 53 *Fed Reg* 11016.

However, such information can be disclosed if the Director of the OCST determines that the withholding of such data or information is contrary to the public or national interest.

b) Administrative review

The Commercial Space Launch Act gives an opportunity for a hearing to applicants who wish reconsideration of a decision made by the Office[179]. In case of the issuance of a license, the applicant may challenge the decision of the Office not to issue the license, or the conditions that the Office has attached to the license. If the Office makes a decision to modify, suspend or revoke a license, such a decision may also be challenged by the applicant. Such is also the case of emergency orders. If a payload owner or operator has been denied the launch of the payload, he can also challenge the decision of the Office. Finally, civil penalties may also be subject to administrative review[180].

The hearings are presided by an administrative law judge[181] and the regulations set forth the procedure to be followed[182]. The administrative law judge will issue a recommended decision which shall be reviewed by the Director of the

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[179] CSLAct Section 12. 49 USC 2611.

[180] 14 CFR 406.1. 53 Fed Reg 11015.

[181] id.

[182] 14 CFR 406.3. 53 *Fed Reg* 11015.

OCST who will make the final decision[183].

Under the Commercial Space Launch Act, final decisions shall be subject to judicial review[184].

c) Petitions and rulemaking

Those matters being very procedural, they will be dealt with rather briefly.

Two types of petitions may be addressed to the Director of the OCST:

- Petitions requiring the Director to waive a requirement of Federal Law applicable to commercial launch services[185]. These petitions ask the Director for an individual decision. The Director will grant the waiver if it is in the public interest and will not jeopardize public health and safety, the safety of property, or any national security interest of the United States[186]. Otherwise the Director will deny the petition for waiver.

- Petitions of a more general nature, having impact on the regulations. These can be petitions to issue, amend or repeal a regulation, or to eliminate as a requirement for a license any requirement of Federal Law applicable to commercial

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[183] 14 CFR 406.5. 53 *Fed Reg* 11015.

[184] CSLAct Section 12 (b). 49 USC 2611.

[185] 14 CFR 404.3 (a). 53 *Fed Reg* 11014.

[186] 14 CFR 404.5 (b). 53 *Fed Reg* 11014.

launch activities[187]. In these cases, if the Director considers that the petition is justified, he will initiate the rulemaking process (otherwise, he will deny the petition)[188]. Rulemaking procedures are provided for in 14 CFR Part 404 Subpart B[189].

10) Export Controls

Prior to the enactment of the Commercial Space Launch Act 1984, the launch of a space launch vehicle was considered as an export subject to the ITAR requirements. The ITAR (International Traffic in Arms Regulations) procedure is handled by the Department of State and designed to address the foreign policy and national security concerns of US armament sales. It was not designed to cover the licensing of commercial space launch vehicles. But the Federal Government lacked specific authority with respect to those launches. Consequently, the ITAR was a substitute[190]. As J.Dorn, Director of the OCST explained during the Senate

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[187] 14 CFR 404.3 (a). 53 *Fed Reg* 11014.

[188] 14 CFR 404.5 (b). 53 *Fed Reg* 11014.

[189] 53 *Fed Reg* 11014.

[190] Senate Report 98-656, 98th Cong, 2d Sess (1984), 98 Stat 5334, at 17-18.

Hearings[191]: " *The basic authority for approving launches, for licensing private sector operations, continues to be the authority contained in the international traffic and arms regulations, which has been delegated by the President to the Department of State. And, as you know, this provides for the oversight of the international munitions trade. The application of these particular regulations, however, has required a somewhat expansive interpretation of the law and has resulted in the designation of launch vehicles or payloads as exports. We believe that it is more appropriate that a specific operation be licensed under specific authority granted to DOT, rather than relying on authority that belongs to another department and which designates a launch vehicle as an export. It is our view, that this expansive interpretation of ITAR could create problems down the road*".

The Senate Committee on Commerce, Science and Transportation stated in its report: "*It is the Committee's intent that the Commercial Space Launch Act be the exclusive authority for the licensing of commercial space launch vehicles*"[192].

Indeed, the Commercial Space Launch Act, in its Section 21(b)[193], provided that " *A launch vehicle or a payload shall not, by reason of the launching of such vehicle or payload, be considered an export for purposes of any law controlling exports*".

In compliance with the provisions of the CSLAct, the Department of State

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[191] Hearing before the Subcomm on Science, Technology and Space of the Comm on Commerce, Science and Transportation, 98th Cong, 1st Sess, (1984), at 24.

[192] Senate Report 98-656, 98th Cong, 2d Sess (1984), 98 Stat 5334, at 18.

[193] 49 USC 2620.

regulations were amended. The definition of "*export*" now provides that "*As of the effective date of the Commercial Space Launch Act, a launch vehicle or payload shall not, by reason of the launching of such vehicle, be considered an export for purposes of this subchapter*"[194]. However, the Department of Commerce has also some authority on exports of certain commodities intended for commercial space applications and which have a dual use (military/commercial), under the Department of Commerce Export Administration Regulations (EAR)[195]. These regulations do not give a definition of "*export*", thus leaving some doubt on whether launch of a launch vehicle or payload would be considered as "*export*" by the DOC and subject to license. However, it seems that such should not be the case. Indeed, the CSLAct uses the expression "*for the purpose of any law controlling exports*". Thus, it can be concluded that the launch of a launch vehicle will not be considered an export either for DOS or for DOC regulations. "...the scope of Section 21(b) of the Commercial Space Launch Act is sufficiently broad to preclude the application of controls under the EAR as well as under the ITAR"[196].

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[194] 22 CFR Ch 1.Subchapter M.Part 120.10. It is important to note that we are dealing here only with the launch regulations. If the launch vehicle or the payload were to be transported to a foreign country to be launched, a license would be required, as it would be an export. Indeed, those two articles would fall under the export regulations. 22 CFR Ch 1. Subchapter M. Munition List and Part 120.10.

[195] 15 CFR Parts 770-799.

[196] G.H.Reynolds & R.P.Merges, *Outer Space, Problems of Law and Policy* (Boulder, Westview Press Inc, 1989), 245.
On export controls see also: A.Dula, "Export Controls Affecting Space Operations" (1986) No 4 *Journal of Air Law & Commerce*, 927-950

CHAPTER 3. ISSUES OF LIABILITY AND INSURANCE

"I believe that space in the twenty first century will probably be what aviation, electronics, and computers were together in this century... It is the next evolutionary step for humanity".

Peter E.Glaser.

Vice President, Arthur D.Little, Inc.

While the rules related to the licensing procedures had been completed and adjusted, such was not the case for the provisions related to liability and insurance. The Commercial Space Launch Act contained rather vague provisions, which turned out to be detrimental to the private launch industry. Thus, in 1988, the Act was amended with respect to the question of liability and insurance. This chapter will study the evolution of those rules from the Commercial Space Launch Act 1984 to the amendments of 1988.

A.- LIABILITY AND INSURANCE UNDER THE COMMERCIAL SPACE LAUNCH ACT

Before 1984, and with the exception of SSI and Starstruck, launch vehicle were procured by the government. "*Almost invariably, the government contractor was obliged to procure liability insurance for which it was reimbursed for the portion allocable to the contract of the reasonable cos of insurance. Moreover, the Government agreed to compensate the contractor for liability to third parties for personal injury or damage to property for those risks not covered by liability insurance*"[1]. Most aerospace companies on the market of launch services never had to bear the risks arising out

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[1] P.D.Nesgos, "Managing Liability Risks in US Commercial Space Transportation", paper presented at Assicurazioni Generali, Fifth International Conference on Space insurance, Rome, March 1987.

of the launch. They were contractors of the Government and any liability arising out of a launch was indemnified by the Government[2]. With the advent of the Commercial Space Launch Act,this situation changed dramatically. First of all, the private companies would be on their own, and not Government contractors any longer. Second, these companies would use Government launch facilities to operate their launches[3]. This situation created a new scheme with respect to liability and insurance. The Commercial Space Launch Act translated this change in its provisions.

1) PROVISIONS OF THE COMMERCIAL SPACE LAUNCH ACT

As originally passed, the Commercial Space Launch Act provided for two insurance requirements. The first requirement was related to the use of Government launch facilities by private enterprise. Indeed, while using those facilities, the launch operators may cause damage to them, particularly damage consequential to a launch failure. Thus, included in the provisions on the use of Government property, is the following: " The Secretary [authority delegated to the OCST] may establish requirements for liability insurance, hold harmless agreements, proof of financial responsibility, and such other assurances as may be needed to protect the United

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[2] P.D.Nesgos, "Recent Developments in Risk Allocation of Concern to the US Commercial Launch Industry and the Insurance Community", Assicurazioni Generali, Fifth International Conference on Space Insurance, Rome, March 2-3, 1989.

[3] See further 3).

States and its agencies and personnel from liability, loss, or injury as a result of a launch or operation of a launch site involving Government facilities or personnel"[4] The second requirement was related to another concern of the United States: the possibility that its international liability is involved. Indeed, the whole legislation is based on the will of the United States to make sure that in all situations, its international obligations are complied with. However, if the United States is answered by another State for damages, it would, by recursory action, ask that money back to the company which caused the damage. Thus, the United States wish to ensure that the company obtained an appropriate insurance coverage. The Commercial Space Launch Act thus provides that "Each person who launches a launch vehicle or operates a launch site under a license issued or transferred under this Act shall have in effect liability insurance at least in such amount as is considered by the Secretary to be necessary for such launch or operation, considering the international obligations of the United States. The Secretary shall prescribe such amount after consultation with the Attorney General and other appropriate agencies"[5].

2) OCST PROPOSED RULES AND LICENSING REGULATIONS

On May 7, 1985, the OCST issued Proposed Rules to carry out the provisions

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[4] CSLAct 49 USC 2624. Section 15 c).

[5] CSLAct Section 16. 49 USC 2615.

of the Act[6].

These rules recalled the two reasons why insurance is needed. They recalled the need for insurance to indemnify the United States in case of damage caused to Government launch facilities used by the launch operator. It also recalls the provisions of Section 16 of the CSLAct. For this latter case, however, the OCST interpreted the provisions of the Act in an extensive manner. Section 16 seems to deal with liability of the United States at the international level. The OCST considers that "*Domestically, the Government may also be held liable to private parties for damage caused by the launching of private space vehicles and payloads from the national ranges...because of the operational role that the Government plays in these launches. For these reasons, DOT believes that the insurance required under Section 16 also should cover these claims*"[7]. Consequently, the launch operator would have to obtain an insurance covering:

- the indemnification of the US Government for damage caused to the launch facilities

- the indemnification of the US Government in case it has been held liable to private parties as operator of the launch facilities

- the indemnification of the US Government in case it has been held liable to third States for damage caused to them by the space activities of its nationals.

In this same comment, the OCST added that requiring third-party liability

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[6] 50 *Fed Reg* 19280.

[7] 50 *Fea Reg* 19280.

insurance has other advantages:

- it protects the public because there is an assurance that funds are available to compensate the damage and because it encourages the industry to operate safely with a view to obtaining lower insurance costs by reducing the risk through safer operations

- it makes the public feel that their interests are protected, thus avoiding serious public opposition to this industry: "*...the assured availability of funds to compensate for loss is a significant element of public acceptability*"[8].

The Act and regulations deal only with liability that might involve the United States Government. Liability for damage caused to parties participating in launch operations, or to their employees, agents or contractors is not dealt with, for it is a matter of agreement among the companies involved[9].

Under the proposed rules,the commercial launch services companies, operators of payloads and operators of commercial launch sites, are required to demonstrate financial responsibility for third-party liability to ensure that the United States' international obligations are properly met and to protect the public in case damage is done. No license can be issued without this financial responsibility ensured by OCST. The burden is on the launch services provider to demonstrate that he obtained the appropriate insurance.

The OCST proposed two forms of acceptable evidence of financial

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8 50 *Fed Reg* 19280.

9 50 *Fed Reg* 19281.

responsibility:

- Commercial insurance that would name the United States (as well as the purchaser of the policy) as an insured party.

- Purchase of a commercial surety bond naming the United States (as well as the purchaser of the bond) as a bonded party[10].

Under the CSLAct, the Secretary (authority delegated to the OCST) is to determine the level of financial responsibility[11]. In the proposed rules, the OCST suggested two means to determine this level of financial responsibility:

- the OCST could require the purchase of the maximum amount of third-party liability insurance or bond available at reasonable rates. As far as this means is concerned, the problem might be that it would deprive the small companies of their cash because of the high insurance premiums they would have to pay.

- the OCST could "do an analysis of the risk posed by a launch and set an appropriate financial responsibility level based on that analysis"[12]. The problem with that method is that in space transportation, there is often no prior launch experience to be used to determine the level of risk.

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[10] A bond is a guarantee by an insurance or bonding company that, if the insured is required by a court to pay for damages covered by the bond, the insurance or bonding company will pay up to the limits of the bond. With insurance, the contract calls for the insurer to pay most claims; with a bond, the insured pays the claim and the bonding company (the surety) stands ready to pay only in the event of a default by the principal (the insured). Whether one chooses a bond or insurance depends on a number of factors, including level of premiums and financial strength of the principal 50 *Fed Reg* 19281.

[11] CSLAct Section 15 c) and Section 16. 49 USC 2614 & 2615.

[12] 50 *Fed Reg* 19281.

Finally, the proposed rules did not determine what would happen in case of a loss that exceeds the amount of insurance, and whether the Government would seek recovery of the additional amount from the party whose operations gave rise to the loss.

3) EXPENDABLE LAUNCH VEHICLE COMMERCIALIZATION AGREEMENT

This agreement was proposed by the Department of Defense on December 22, 1986. Before going further on the provisions of this agreement, particularly with respect to liability and insurance, it is necessary to analyze briefly the provisions of the Commercial Space Launch Act related to the use of Government launch facilities by private launch operators.

The Commercial Space Launch Act provides for the use of Government property in its Section 15[13]. Section 15 directs the Secretary of Transportation to facilitate the acquisition (by lease, sale, transaction in lieu of sale or otherwise) of excess Government launch property and launch services not otherwise needed for public use. It is under this provision that the three major ELV's companies, McDonnell Douglas Astronautics co., General Dynamics Space Systems Division and Martin Marietta Commercial Titan Systems, have been transferred the license to market commercially the vehicles they developed and manufactured under

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[13] 49 USC 2614.

Government contract, respectively Delta, Atlas/Centaur and Titan[14]. These provisions also allow the use of Government launch facilities by private companies. Indeed, no private launch sites are in operation, as we have stressed earlier. Moreover, the Air Force and NASA have a long and valuable experience of the launch sites operations. Consequently, some private companies expressed their interest in using Government launch facilities. The Government facilities susceptible to be used by private companies are the following:

- For the heavy launchers such as Delta, Atlas and Titan:
    * Cape Canaveral, Florida (NASA/Air Force)
    * Vandenberg Air Force Base, California
- For the small capacity launchers
    * Cape Canaveral
    * Vandenberg
    * Wallops Island, Virginia (NASA). Sounding rockets, small orbital vehicles.
    * Barking Sands, Hawai. Sounding rockets.
    * Eglin Air Force Base, Florida. Sounding rockets.
    * Greenriver, Utah. Sounding rockets.
    * Kwajalein, Marshall Islands. Sounding rockets.
    * Tonapah, Nevada. Sounding rockets.
    * White Sands, New Mexico. Sounding rockets.

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[14] E.J.Steptoe, "Regulation of Private Commercial Space Transportation by the United States Department of Transportation", (1985) 28 *Colloquium*, 240-246, at 244; United States Department of Commerce, *Space Commerce. An Industry Assessment*. DOC May 1988, at 8.

* Poker Flat Research Range, Alaska (University of Alaska). Sounding rockets.[15]

The acquisition of Government property by private companies is subject to reimbursement of the Government. The pricing policy set forth in the Act is the following:

- in case of sale or transaction in lieu of sale: the amount to be paid by the company is determined by the appropriate agency, in consultation with the Secretary, and is to be equal to the fair market value. The Senate Committee on Commerce, Science and Transportation defined the "fair market value" as meaning "The value of the item(s) on the open market subject to two constraints: 1) all sales should guarantee a reasonable return to the Federal Government, and 2) the Federal Government should provide no direct subsidies"[16].

- in case of other type of acquisition of launch property or launch services, the price is determined by the appropriate agency, in consultation with the Secretary, in an amount equal to the direct costs incurred by the United States. The Committee explained that "In the case of launch property, direct costs include any specific wear and tear or damage to the launch property of the launch site; whereas in the case of launch services, direct costs are the salaries of US civilian and contractor personnel applied in a manner consistent with Department of Defense Directive No

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[15] Department of Commerce, *Space Commerce. An Industry Assessment.* DOC May 1988.

[16] Senate Report 98-656. 98 Stat.5334, p15.

3200.11 issued April 18, 1984 - "Major Range and Test Facility Base" "[17].

The Senate Committee emphasized that "Nothing in this subsection is meant to affect in any way the existing authority of any Federal agency to establish and/or collect reimbursements for the lease, sale, transaction in lieu of sale, or otherwise, of launch property or launch services of the United States"[18]. This is how, exercising its own authority, the Department of Defense issued the Department of the Air Force Model Expendable Launch Vehicle Commercialization Agreement[19]. This agreement provides for the conditions under which private companies use the Government launch facilities[20]. The agreement provides that all Government property is to be furnished "as it is" and the US Government does not make any warranty whatsoever concerning its property[21]. The agreement also contains practical provisions regarding the use of the ranges: safety and accident prevention, furnishing of launch data and disclosure of information, disputes, financial arrangements, termination of the agreement, status of the personnel. In attachments, the agreement provides for goods and services to be furnished by the Government.

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[17] id.

[18] id.

[19] Department of the Air Force Model Expendable Launch Vehicle Commercialization Agreement, Revision One, Feb 12, 1988.

[20] For some details about the Model Launch Agreement, particulary from a contractual point of view, see: R.L.Kissick, "Commercial Space Launch Contracts: Disputes and Remedies", (1989) 4 *The Journal of Law & Technology*, 31-42.

[21] Agreement, Art IV,d.

The agreement also provided that the Government reserves the right to preempt a launch from its facilities, and should not be held liable for any costs consecutive to that preemption[22].

Apart from those provisions, the Agreement provided for the liability issues relating to the use of Government facilities by private launch operators. The User (the launch operator who uses the Government facilities) is required to assume responsibility for all damage to its own property[23]. As far as Government property[24] is concerned, the Agreement provides that the User assumes responsibility for the property of the US Government and its contractors or subcontractors, regardless of fault, to the extent of the maximum available insurance

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[22] Agreement Art XIII.

[23] Agreement Art IV,c.

[24] This type of liability would be called "second-party liability". "First party insurance covers losses incurred by the insured to its own property or personnel. For example, this kind of insurance covers the loss of a communications satellite by the satellite owner if it fails to achieve orbit or it malfunctions. It may also cover resulting loss of profit or business interruption costs. Second-party insurance covers the policy holder for damage caused to a second, related party. For example, a launch service provider contracting with the US Air Force (the second-party) for use of Government launch facilities and related range services would be liable for damage to Government property caused by the launch vehicle. The launch service provider could also be liable to its customer, the satellite owner, or to the satellite insurer through subrogation, if the launch vehicle malfunctions and destroys the satellite payload. Third-party liability insurance provides protection from liability incurred by the insured as a result of harm or damage caused to unrelated third parties. This kind of "innocent victim" coverage would apply if, for example, a launch vehicle, carrying several hundred tons of explosive propellants, malfunctions, and its consequent destruction at low altitude causes injury or damage to a nearby community". United States Department of Commerce, *Space Commerce. An Industry Assessment*. May 1988.

worldwide at reasonable cost, for any specific launch[25]. One exception is provided to that rule: the User would not be held responsible for damage caused by the intentional misconduct of the Government, its contractors or subcontractors[26]. The User shall also assume third-party liability that might result from a launch. The User shall also indemnify the Government, its contractors and subcontractors, and the agents, servants, employees and military personnel of each of them, from any third party liability. Those two latter types of liability are borne by the User regardless of fault and up to the level of maximum available insurance[27]. The latter type of liability includes third party claims relating to the production, marketing, use of Government facilities and services, environmental incidents and legal violations[28]. The Agreement defines the "Maximum available insurance" as "the amount of insurance available in the world market at a reasonable premium and on terms considered commercially reasonable for the risks involved to fund the User's responsibilities under this Agreement"[29]. This amount is to be determined by the US Government, with no opportunity to appeal of that decision[30].

Above the maximum insurance, the Agreement provides that the User is

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[25] Agreement, Art IV, c.

[26] id.

[27] Agreement Art IV, c, 3.

[28] Agreement Art IV, c.

[29] Agreement Art IV b, 3.

[30] Agreement Art IV, c, 4.

responsible for paying any claims in excess of that amount, under US law (in particular the Federal Torts Claim Act) and the Government has the right to ask the User or any other party for damage in excess of the user's insurance[31].

NASA has also elaborated an agreement for the use of its launch facilities. In 1987, an agreement was signed between NASA and General Dynamics for Private Sector Operation of Atlas/Centaur Expendable Launch Vehicles. The provisions of that agreement are very similar to the provisions of the Air Force agreement[32].

4) SITUATION OF PRIVATE LAUNCH OPERATORS

As a result of the Commercial Space Launch Act and the agreements the companies entered into with NASA or the Air Force, the situation of private launch operators was as follows.

First of all, as far as their own property was concerned, they had to assume the responsibility of any damage.

Second, they had to protect the Government for all damage that could occur to Government property and personnel.

Third, they had to take insurance for damage caused to third-parties not involved in the launch.

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[31] Agreement Art IV, c, 3.

[32] United States Department of Commerce, *Space Commerce. An Industry Assessment*, May 1988. The text of the NASA/General Dynamics Agreement has not been released for public access.

As we have seen previously, the provisions of the Commercial Space Launch Act were rather vague. The Air Force and NASA agreements[33] imposed much more detailed conditions on the launch operators. "*While the Secretary of Transportation was required by the Commercial Space Launch Act to take actions to facilitate and encourage the sale or lease by the private sector of excess launch property, the Government agencies having responsibility over launch sites imposed detailed insurance requirements and broad obligations to indemnify the Government and its contractors for losses arising from the conduct of launch operations*"[34]. Thus, the vagueness of the provisions of the CSLAct gave the opportunity to those agencies to impose strict requirements on private launch operators.

The insurance to be taken by the launch provider in all those cases was, of course, to be in an amount limited by the Secretary of Transportation. But above that amount, the company was still liable under the US applicable law[35]. This

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[33] For developments on the Air Force Agreement see:
* P.D.Nesgos, "Managing Liability Risks in US Commercial Space Transportation", paper presented at Assicurazioni Generali, Fifth International Conference on Space Insurance, Rome, March 1987.
* K.G.Yelton, "Evolution, Organization and Implementation of the Commercial Space Launch Act and Amendments of 1988", (1989), 4 *The Journal of Law & Technology*, 117-137, at 132.
* Department of Commerce, *Space Commerce. An Industry Assessment*, May 1988.

[34] P.D.Nesgos, "Recent Developments in Risk Allocation of Concern to the US Commercial Launch Industry and the Insurance Community", Assicurazioni Generali, Fifth International Conference on Space Insurance, Rome, March 1989.

[35] For an analysis of the US law applicable to the liability of private corporations for the conduct of launch vehicle transportation, see: P.D.Nesgos, "International and Domestic Law Applicable to Commercial Launch Vehicle Transportation", (1984) 27 *Colloquium*, 98-110, at 102 and n.

means that private launch operators were, under the CSLAct, subject to unlimited liability.

B.- THE CONCERNS OF THE SPACE LAUNCH INDUSTRY

The situation described above created some concern in the launch industry, particularly because of the very strict provisions of the Air Force Model Launch Agreement. The industry was not contesting the necessity of some protection provided by the launch operator to cover damage caused to Government property and third-parties. However, they discussed the form and amount of that protection. In this paragraph, we will give an overview of the main concerns expressed by the industry[36].

Unlimited liability.- Of course, the major concern is the exposure of the companies to unlimited liability, big established companies as well as start-up companies. The risks in space activities are very high, not really in probability, but in amount. For instance, in April 1986, a Titan 34D rocket exploded 700 feet above the launch pad where it was launched, at Vandenberg Air Force Base. Fortunately, no large structure of the rocket fell on the pad. But secondary explosions produced some segments which fell on the launch area and damaged or totally destroyed some of the launch facilities. In fact, two launch sites were damaged. The cost for the

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[36] See: P.D.Nesgos, "Satellite Launch Liability Risks", *Business Insurance*, Oct 29, 1990, at 25.

repair of those pads has been $ 58.1 million, and the repair time was respectively six and seven months[37]. T.S.Moorman, during the Senate hearings, explained that a commercial Titan III mishap could be much more damaging that the Titan 34D accident of April 1986[38]. Thus, the unlimited liability scheme exposed companies to very high risk. This exposure to unlimited liability has been termed by the industry as "betting the company"[39]. Indeed, in case a maximum damage had occurred, the launch company concerned could go bankrupt. Even the established launch companies were menacing to get out of the launch business. Thus, the President of McDonnell Douglas was stating: " *This burden quite likely would force us to consider carefully the practicality of continuing in the commercial launch business*"[40].

Maximum probable loss.- Under the CSLAct, the companies had to be ready to bear liability for maximum loss. Indeed, they would have been liable without limit even in the event of a catastrophic damage. Indeed the risk of such a catastrophic event is very remote[41] and, in fact, no third party claim has ever been paid under

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[37] These costs were borne by the US Government because this launch was a Government launch. Senate Report No 100-593, (1988) USCA, 5525, at 5528.

[38] Hearing Before the Subcomm on Science, Technology and Space of the Comm on Commerce, Science and Transportation, US Senate, 100th Cong, 2d Sess, May 17, 1988, p 12. (Statement of T.S.Moorman, Jr, Director of Space and SDI Programs, Office of the Assistant Secretary of the Air Force - Acquisition).

[39] Hearings, p49. (Statement of J.F.Yardley, President of McDonnell Douglas Astronautics Company).

[40] Hearings, p 49.

[41] Hearings, p 46. (Statement of R.Chamberlain, Vice President, Martin Marietta Commercial Titan Inc.).

either a launch liability policy or manufacturer's aerospace products liability policy[42]. However, if such a damage was to happen, it would be far beyond the resources of the companies involved.

Competitive disadvantage.- The industry stressed that this situation of unlimited liability and unlimited risk was preventing US companies from competing fully with their foreign competitors[43]. Indeed, the foreign launch services offer much lower insurance costs. The major competitor to the US space launch industry is Arianespace, managing the European launcher Ariane. The liability and insurance

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[42] United States Department of Commerce, *Space Commerce, An Industry Assessment*, May 1988. Senate Report No 100-593, (1988) USCA, 5525, at 5528.

[43] Hearings, Statement of E.F.Kadar, President, Conatec Inc., p 54.: " At this time, Conatec is competing with foreign providers of Research Rocket launch services for the provision of launch services in support of several programs. These competitors have one major advantage over our proposed services - they can offer the customer total protection from any liability either at no cost or at very low cost to the customer. Conatec, however, under the current Government requirements for insurance, must obtain commercial insurance for these risks up to the amounts determined by OCST to cover the "maximum probable loss" and may be liable for any damages in excess of those amounts. Since Conatec's customer would almost certainly be held jointly and severally liable for any such damages, our company is faced with two equally unpalatable alternatives - (1) we must purchase far more insurance than is necessary to cover the maximum probable loss in order to cover the "maximum possible loss", or (2) we, and our customer, must accept the chance that we may be held liable for damages far in excess of the amount of insurance purchased to cover the maximum probable loss. Under the first alternative, our launch service cost rises significantly and can easily make us non-competitive with foreign launch providers. Under the second alternative, the customer must decide whether he wants to take the risk of a major damage award being levied against him in the event that there is a successful claim, a chance he does not have to take if he elects to launch with our foreign competitors The competitive disadvantages of both alternatives are thus obvious".
On foreign competition see also: P.D.Nesgos, " Satellite Launch Liability Risks", *Business Insurance*, Oct 29, 1990, at 25; Department of Commerce, *Space Commerce, An Industry Assessment*, 1988.

issues are dealt with by Arianespace in the following manner:

- similarly to the NASA Launch Services Agreement, Arianespace requires mutual indemnification and cross-waiver agreements;

- the customer is to indemnify Arianespace if Arianespace is sued as a result of the fault of that customer or his failure to secure a waiver;

- Arianespace set up its insurance subsidiary, S3R. It offers an insurance covering risks incurred from launch until time of spacecraft separation into the required orbit;

- Arianespace is not liable without limit towards the French Government. The company must provide a third-party liability coverage up to 400 million French Francs. In excess of that amount, and for a period of thirty-six months, the French Government provides indemnification for any claim of a third party (the spacecraft user is liable past that period);

- no launch property insurance is required from Arianespace;

- the possibility of a launch failure is covered by Arianespace through "Launch Risk Guarantee Agreements" which offer a coverage equivalent to that proposed on the commercial insurance market, at lower rates, and in an amount equal to the launch cost.

The People's Republic of China and the Soviet Union also offer low price coverage for their launch services[44].

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[44] On this foreign competition see: US Department of Commerce, Space Commerce. An Industry Assessment, May 1988, p 124; see also Hearings.

State of the insurance market.- Apart from the unlimited liability issue, and as the examples of foreign competitor show, an other issue of concern was the coverage that could be offered by the commercial insurance market. Two problems were mentioned by the industry: first, the capacity of the insurance market could be insufficient to meet the needs and, second, the premiums to be paid were extremely high. This situation was created by a number of important losses borne by the insurance industry consecutive to a series of launch failures[45]. An extensive quote of the Senate Report provides for an interesting clarification of this point.

"Although 1983 was a successful year for satellite launches, 1984 was not. The underwriters' combined ratio went from 90 percent (meaning a 10 percent profit) at the beginning of 1984 to 180 percent (or an 80 percent loss) by June 1984. During a 1984 shuttle launch, two satellites (Indonesia's Palapa 2-B and Western Union's Westar VI) were not placed into the correct orbits. Although they were later recovered during another shuttle mission and the underwriters reportedly netted about $ 30 million for the satellites (after recovery costs), they paid out a total of $ 182 million in claims. In June, a $ 102 million Intelsat V F-19 was lost during an Atlas Centaur launch. Insurance premiums for a shuttle launch rose from 5-7 percent in 1983 to 15-20 percent of the value of the satellite in June 1984. Several underwriters, including a major London firm, Orion Insurance Company, dropped out of the space insurance business.

In 1985, five more satellites suffered launch failures, costing insurers close to $ 370 million. The losses included: two Hughes satellites, each insured for $ 85 million, and two satellites destroyed during an Ariane launch failure, insured for a total of $168 million. A leading US underwriter, International Technology Underwriters (Intec), restricted its coverage and no longer would provide

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[45] See: J.S.Greenberg and C.Gaelick, "Space Insurance, Comments from an Observer", *Space Policy*, November 1986, 307-321.

on-orbit insurance coverage. The amount of insurance available on the world market dropped to 60-70 million.

In January 1986, the space shuttle Challenger exploded during launch killing all seven aboard. Although the shuttle was carrying an uninsured satellite (NASA's TDRSS-2), the loss had a strong impact on the launch industry itself. The United States also suffered launch failures of a Titan and a Delta launch vehicle in April and May respectively. Also in May, an Ariane vehicle failed, destroying a satellite insured for $ 82 million, and Arianespace did not resume launches until September 1987. According to one source, after the shuttle and Ariane failures, "satellite underwriters lost total confidence in satellite launches..." as the combined ratio reached 148 percent. According to Ford Aerospace, the insurance industry's combined ratio for 1977-85 was 200 percent, or, more specifically, the insurers collected $ 450 million in premiums and paid out $ 900 million in claims. For 1984-85, the loss ratio was 330 percent. A former insurance executive commented that renewal of on-orbit satellite policies, whose rates had also risen, kept the space insurance industry alive.

In January 1987, Business Insurance estimated that launch insurance capacity was $ 75-100 million per launch. At the end of the year, its estimate was 120-150 million. However, even while insurance coverage became more difficult to find, a former underwriter commented, "In real terms, there is no capacity crisis. What we have here is a crisis of confidence. There is capacity which exists that has not touched the space industry because it (the space industry) is too volatile and unpredictable".

Insurance premiums, which reached a high of 25-30 percent of the value of the satellite, have eased somewhat and are now reportedly at 20-28 percent. Premiums will likely stay high until the insurance companies regain much of their losses. Last year, many underwriters would not write coverage more than 90 days in advance. Currently, the Italian firm Assicurazioni Generali will

write a policy 18 months in advance, but maintains the right to review and revise the policy if there is a change in launch vehicle or satellite status. The firm will also grant coverage 12 months in advance, "but the wording says that the client must inform us of a change in the risk".

At least one company, RCA, chose not to insure the launch of its communications satellite (Satcom K-2, in November 1985) rather than pay exorbitant rates, essentially self insuring the launch. Other companies have bought partial coverage and self insured the remainder. Some insurance companies are encouraging self insurance in order to rebuild market confidence. These actions are typical of a "hard" market strategy."[46].

Consequently, not only the companies were exposed to unlimited liability, but also the insurance coverage of their risks was difficult to obtain.

NASA's practice.- One of the arguments brought by the industry is that the Commercial Space Launch Act was making them unlimitedly liable while the practice of NASA, for years, and as far as its commercial activities were concerned, was completely different. The scheme used by NASA was the following:

- NASA required the customer to obtain the maximum available third-party liability insurance at reasonable cost, with the Government as a named insured to protect it, at no cost, against any claims that might arise out of the launch process;

- then, under Section 308 of the NASA Act, the Government assumed responsibility for third-party liability risks exceeding the limits of insurance commercially available

- as far as Government property was concerned, NASA used to waive any

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[46] Senate Report No 100-593. 100 Cong. 1988, (1988) USCA 5525, at 5528.

right to claim against the party procuring the launch service. More exactly, NASA was requiring a system of cross-waivers of rights involving all parties to the launch[47].

The industry was supporting the establishment of such a scheme for their own activities.

Other comparable field.- The situation of the private launch industry was that of a nascent industry exposed to a tremendously high amount of risk arising out of the ultra-hazardous nature of its activities. This situation was compared with that of the nuclear industry[48]. In this field, the Price-Anderson Act of 1957[49] capped the public liability of nuclear reactors licenses and provided for an indemnification by the Government up to that cap, to the extent private insurance capacity was unavailable. The Price-Anderson Act was later revised. The cap on liability was maintained, but the level of private insurance protection was increased through retrospective premium assessments on the commercial licensees[50].

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[47] AIAA Position Paper, US Commercial Space Transportation Risk Allocation and Insurance, (1988) 16 *Journal of Space Law*, 110-115, at 111 and 113; US Department of Commerce, *Space Commerce. An Industry Assessment*, May 1988, at 121; Senate Report No 100-593, *op. cit*, at 5527.

[48] Hearings *op.cit*, at 65.

[49] September 2, 1957, Public Law No 85-256, 71 Stat 576-77, as amended, 42 USC 2110 (1970)

[50] AIAA Position Paper, US Commercial Space Transportation Risk Allocation and Insurance, (1988) 16 *Journal of Space Law*, 110-115, at 114.For some developments on the situation of the nuclear industry and the Price-Anderson Act see: J.S.Greenberg, "Third-Party Liability Insurance and Space Launches", *Space Policy*, August 1988, 211-220, at 213; US Nuclear Regulatory Commission, *The Price-Anderson Act, The Third Decade*, Report to Congress, December 1983, R.L.Rockett et al, *Financial Protection Against Nuclear*

Those arguments were stressed by the private launch industry to ask for an adaptation of the rules set forth by the Commercial Space Launch Act, to the situation of a nascent industry. Those modifications were seen as necessary to maintain a viable and competitive launch industry in the United States. "*If we as a nation are to remain in the forefront of space endeavour and maintain our ability to compete in the world market, we must pull together to eliminate unnecessary impediments to establishment of a strong, domestic commercial launch industry. Only then can US industry compete effectively with international competitors that receive substantial subsidies from their Governments in providing liability protection for their customers at little or no costs*"[51].

C.- THE COMMERCIAL SPACE LAUNCH ACT AMENDMENTS

The Commercial Space Launch Act was amended in 1988[52] in order to respond to the situation described above. It is interesting to quote the Senate Report explaining its intention when voting on the amendments: " *It [the Bill] is intended to provide a mechanism in which the domestic launch activities can change*

Hazards: Thirty Years' Experience Under the Price-Anderson Act, Trustees of Columbia University in the City of New York, January 19, 1984.

[51] Hearings, *op.cit*, at 48. (Statement of J.F.Yardley, President, McDonnell Douglas Astronautics Company).

[52] Public Law 100-657, Nov 15, 1988. (1988) USCA 102 Stat 3900.

from a public activity, which it has traditionally been, to a wholly private endeavour. This bill should create and environment where world insurance markets can grow and mature to meet the needs of a domestic launch industry. This bill will provide an adequate risk sharing arrangement between industry and Government to enable the emerging launch industry to compete on a more equal footing with foreign launch concerns. The domestic launch industry is of sufficient importance to the national economic and military security of this nation that this legislation is warranted if this industry is to have a credible chance of meeting foreign competition"[53].

a) Definitions

The Commercial Space Launch Act Amendments added a definition in Section 4 of the CSLAct, that of a "third-party". "Third-party" is defined as meaning: "any person or entity other than

" (A) the United States, its agencies, or its contractors or subcontractors involved in launch services;

(B) the licensee or transferee;

(C) the licensee's or transferee's contractors, subcontractors, or customers involved in launch services; or

(D) any such customer's contractors or subcontractors involved in launch services"

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[53] Senate Report No 100-593, *op.cit*, at 6.

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The definition classifies as third parties mainly people not directly associated with the commercial launch operations. However, it is interesting to note that the definition of "third parties" encompasses Government personnel directly associated with the commercial space launch operations. Contractors or concessionaires present on the launch site incidentally or unrelatedly to the launch itself, are also included in the definition of third parties[54]. As the Senate Report stresses, " *This definition will increase the possibility that comprehensive reciprocal waivers can be reached among all parties associated with the launch of a satellite. Such waivers were a standard element in space shuttle agreements*"[55]. As we will see further, some provisions of the CSLAct Amendments deal with waivers of claims[56].

b) Acquisition of Government property and services

Section 15 (c) was amended to clear the role of the Secretary of Transportation as far as assurances required from the licensee are concerned. This section now obliges the Secretary to require assurances as may be necessary to protect the United States, its agencies and personnel from liability, death, bodily injury, or loss of or damage to property resulting from a launch or operation of a

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[54] Senate Report No 100-593, (1988) USCA, 5525, at 5532.

[55] id.

[56] See C.1) d).

launch site involving Government facilities and personnel. As we have noted previously, the industry expressed some concern about the requirements of NASA and the Air Force in their respective Agreements and there was some confusion about the sharing of authority relating to the use of Government facilities, between OCST on one hand and NASA or the Air Force on the other hand. It seems that with this amendment, authority is clearly attributed to the Secretary of Transportation to determine the assurances to be required from launch companies[57]. In order to further protect the companies, this amended section also provides that the Secretary may not relieve the Government of liability for loss or injury arising as a result of wilful misconduct of the United States or its agents.

A paragraph (d) has been added to Section 15 to allow Air Force and NASA to collect directly any payment for activities involved in the production of launch vehicles or payloads. Indeed, private launch companies showed interest in quality-control or production-related services that NASA and the Air Force can provide, due to their experience. This provision intends to allow these agencies to collect payment directly for this type of service.

c) Insurance requirements

On that matter, the Commercial Space Launch Act Amendments have

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[57] P.D.Nesgos, "Recent Developments in Risk Allocation of Concern to the US Commercial Launch Industry and the Insurance Community", Assicurazioni Generali, Fifth International Conference on Space Insurance, Rome, March 2-3, 1989.

brought quite important changes. The licensee must provide insurance or financial responsibility in the following conditions. These requirements must be met as a condition for receiving a license to conduct the concerned launch operations. Any insurance policy obtained in that view must protect the United States, its agencies, personnel, contractors and subcontractors, as well as the other parties to the launch[58].

Firstly, the licensee must obtain insurance "in an amount sufficient to compensate the maximum probable loss ... from claims by a third party for death, bodily injury, or loss of or damage to property resulting from activities carried out under the license"[59]. The amount of insurance required to protect against maximum probable loss will be determined by the Secretary, in consultation with the US Air Force and NASA. The licensee will not be required to obtain insurance or financial protection in an amount exceeding $ 500 million[60]. The Secretary may limit this amount if he determines that the maximum liability insurance available on the world market at a reasonable cost is less than $ 500 million. This alternative was included to take into account the volatility of the insurance market and the possibility of

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[58] CSLAct Amendments. Sect 16 (a) (2).

[59] Section 16 (a) (1) (A) Amend. Act.

[60] " The Committee received testimony which indicated that liability insurance may be available in amounts up to $500 million. NASA required $500 million in liability insurance for payloads carried by the space shuttle, and a total of $750 million when multiple payloads were launched. Liability insurance is routinely available to the commercial airline industry in amounts of $500 million, and there has never been an incident which resulted in claims exceeding $500 million." Senate Report No 100-593, (1988) USCA, 5525, at 5534.

unavailability of the $500 million coverage.

Secondly, the licensee must obtain insurance or financial protection "in an amount sufficient to compensate the maximum probable loss from claims against any person by the United States for loss of or damage to property of the United States resulting from activities under the license"[61]. This insurance will name the United States insured, at no cost to the Government. The amount of insurance required is capped, in that case, at $ 100 million[62]. The Secretary has also the authority to limit that amount in function of the amount of coverage available on the world market. This insurance is required to protect property of the United States. However, no mention is made of the contents of the expression "property of the United States". Does that include property of the United States' contractors used by the

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[61] Section 16 (a) (1) (B) Amend.Act.

[62] "The initial limitations in the legislation are based upon the best estimates that the Committee received of probable damage to Government property. The largest rocket in the commercial fleet is the Titan III. The worst accident in the history of that vehicle damaged two launch pads and disabled them for 9 months. Losses totalled $60 million including environmental impacts and the cost of clean-up operations. An initial limitation of $100 million is appropriate in light of this and other factors such as the strict control on launch operations that will be maintained by the US Air Force. The Committee received testimony from the US Air Force that damage to Government property could reach $300 million, despite their best efforts to minimize risk to Government assets. The Committee also received testimony that property insurance to protect Government launch property was not likely to be available in amounts in excess of $120 million because this type of insurance has never before been required as a condition of launch. The Committee believes that $100 million would protect the Government from the most probable losses that might occur in launch operations, and is an amount that the world insurance markets can provide at reasonable rates". Senate Report No 100-593, (1988) USCA, 5525, at 5532.

Government on the site, for example ?[63]

Sometimes, property insurance might not be available by reason of policy exclusion. In that case, the company concerned simply cannot obtain any coverage for a certain type of risk. If the Secretary determines that these exclusions are usual for the type of insurance involved, he may waive, after consultation with the Administrator of NASA and the Secretary of the Air Force, on behalf of the Government, the right to recover any damages for loss of or damage to property of the United States.

Section 16 (A) (4) provides that the maximum amounts of Section 16 (a) (1) (A) (I) and (B) (I) are to be reviewed within six months of the enactment of the amendments and, then, every twelve months. A report shall be submitted to Congress about these reviews. Any adjustment made in these conditions will not become effective until the expiration of a 30-day period during which Congress can review and comment upon the proposed adjustments[64]

It is to be noted that the absence of definition of the "maximum probable loss" and the vagueness of the expression lead to full reliance on the OCST for the determination of that amount. This could be at the advantage or disadvantage of the companies.

Very important authority is given to OCST also with respect to the determination of insurance amounts required. Indeed, no provision allows licensees

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[63] P.D.Nesgos. *op.cit.*, at 14

[64] CSLAct Amended. Sect 16 (a) (1) (A) (4)

to challenge the decision of the OCST determining the amount of insurance required[65]. The OCST has also the discretion to let a launch take place without insurance, in case of absence of available coverage on the world insurance market[66]. However, the Senate Report stresses[67] a number of times that, especially as far as Government property is concerned, in case the amount of insurance coverage available to cover the maximum probability risk standard is insufficient, a part of financial responsibility could be required from the licensee to cover the difference available insurance/required amount. Moreover, the OCST is

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[65] P.D.Nesgos, *op.cit.*, at 12.

[66] Senate Report 100-593, op.cit, at 9,10. "The Committee recognizes that the world insurance markets may be unable to provide coverage to protect fully against the maximum probable loss. This may occur as a result of constrictions in world liability insurance markets due to the volume of claims being paid or to other factors not related to the space launch business, such as normal business cycles in the insurance industry. The Committee received reports from CRS which stated that losses in the insurance industry totalled more than $ 450 million in the years between 1977 and 1985. The losses, which resulted from multiple claims, increased premiums to as high as 28 to 30 percent of the value of the satellite being insured and restricted total insurance availability. The Committee expects that there will be similar occurrences in the commercial space launch business, and that total insurance available for any one launch may be inadequate to meet the requirements of this legislation. For example, a Titan III launch vehicle carrying two communications satellites could easily require $ 250 million in property insurance for the payloads which must be insured. Add to that $ 100 million in Government property insurance and up to $ 500 million in liability insurance, as required by the proposed legislation, and a Titan III launch could require $ 850 million in insurance that must be obtained to protect against the risks that are posed by one single event - the launch of that vehicle. The aggregate risk may overwhelm the capacity of the market-place at a particular time, or the ability of a launch operator to pay the premiums that may be charged for this expansive coverage. Because of the potential for market failure in this segment of the insurance industry, the Committee grants the Secretary the discretion to permit a launch in the absence of insurance coverage to protect against the maximum probable loss".

[67] Senate Report No 100-593, (1988) USCA, 5525, at 5537.

asked by Senate to be very cautious in granting licenses when the insurance and financial responsibility requirements are not met fully[68]

d) Reciprocal waivers of claims

The system of waivers of claims is a technique that has been used by NASA for years, in its commercial contracts. It is also used by other launch providers, such as Arianespace in Europe.

* ***Waivers of claims required from the licensee***

Subparagraph (C) of amended Section 16 (a) (1) provides that the licensee is required to enter into reciprocal waivers of claims with its contractors, subcontractors, and customers, and the contractors and subcontractors of such

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[68] Senate Report No 100-593, (1988) USCA 5525, at 5537: "The Committee stresses that the permission to launch where the insurance and financial responsibility is less than the maximum probable loss must be fully justified by the prevailing conditions in the world insurance markets; by proof that the operator involved has obtained all of the insurance possible for that particular launch and has offered the maximum amount of financial responsibility within the bounds of sound business practices. The standards for granting a license, where the maximum probable property loss requirement has not been met, must be more stringent than those relating to the liability requirements. There have been losses at Government launch sites, losses which caused millions of dollars in damage. Unless the maximum probable loss is fully compensated by insurance, the Government will be responsible for the added costs of repair and these funds will have to be obtained from existing programs within the US Air Force or from additional appropriations. The Committee expects DOT to be circumspect about granting licenses in the absence of the statutory property insurance requirements. The legislation requires the DOT to report to the Congress annually regarding all licenses issued and the insurance requirements associated with those licenses. DOT should be on notice that the Committee will be monitoring all actions taken in this area".

customers, involved in the launches. The purpose of such waivers is that each party to the waivers agrees to be responsible for any property damage or loss it sustains or for any personal injury[69] to, death of, or property damage or loss sustained by its own employees resulting from activities carried out under the license. The justification of this provision is, according to the Senate Report, " *(1) to limit the total universe of claims that might arise as a result of a launch; and (2) to eliminate the necessity for all of these parties to obtain property and casualty insurance to protect against these claims... This provision will maximize the coverage of available insurance resources by avoiding the costs of duplicate litigation between the parties*"[70] Section 16 (a) (1) Subparagraph C uses the formula: "Each license issued or transferred under this Act shall require the licensee or the transferee to enter into reciprocal waivers of claims...". This provision seems to mean that the waivers requirement will be an important and compulsory condition set forth in each license.

An author explained that "*One unfortunate effect of the language contained in Section 16 (a) (1) (C) which requires each party to agree to be responsible for any property damage it sustains is that, read literally, it would require the licensee's customer to assume loss of its payload and would preclude the licensee from offering any form of launch risk guarantee -- certainly a situation that would place US commercial launch*

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[69] It seems that the expression "personal injury" is intended to mean "bodily injury", P.D.Nesgos, "Recent Developments in Risk Allocation of Concern to the US Commercial Launch Industry and the Insurance Community", Assicurazioni Generali, Fifth International Conference on Space Insurance, Rome, March 2-3, 1989, at 16.

[70] Senate Report, at 5538.

companies at a competitive disadvantage with their foreign counterparts" and expressed his opinion that "*Provision should have been made in the legislation to the effect that any claims between any direct contracting parties would not be affected*"[71]. However, in our view, it seems that if such a concern can be expressed, due to the lack of precision in the legislation itself, it was not the intent of the legislator to create that kind of situation. As the Senate Report emphasizes: "*The required waivers are not intended to prevent or encumber enforcement of the private entities' contractual rights and obligations*"[72]. Indeed, if a strict and literal interpretation were to be adopted, one of the major purposes of the legislation, putting American enterprises in a healthy situation of competition with foreign launch providers, would be defeated.

* ***Waivers of claims required from the Government***

The system of waivers of claims can work only if all participants to a launch enter the network of crossed-waivers. As we have explained, the licensee must ensure that the waivers are entered into all along the chain of its contractors and subcontractors. The licensee is one participant to the launch operations. The United States, its agencies, contractors and subcontractors must also enter the cross waivers system to give it its maximal efficience. The Secretary of Transportation is required by the CSLAct amendments to enter, on their behalf, into reciprocal waivers of

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[71] P.D.Nesgos, *op.cit.* note 66, at 16 and 29.

[72] Senate Report, at 5538.

claims with the licensee or transferee, its contractors, subcontractors and customers, and the contractors and subcontractors of such customers, involved in launch services. The waivers have the same purpose than those entered into by the licensee himself, namely that each party to the waivers agrees to be responsible for any property damage or loss it sustains or for any personal injury to, death of, or property damage or loss sustained by its own employees resulting from activities carried out under the license[73]. However, in the case of the Government, there are three peculiar cases with respect to Government's waivers.

* ***Amount of the claim***

Section 16 (a) (1) (D) provides that "Any such waiver shall apply only to the extent that claims exceed the amount of insurance or demonstration of financial required under subparagraph (B)"[74]. There is no Government's obligation to waive claims when it is the beneficiary of the insurance. But if the damage exceeds the amount of insurance provided by the licensee, the Government has an obligation, under Section 16 (a) (1) (D) to waive its claims.

* ***Government employees***

Nothing is said about Government employees' case in the amendments to the CSLAct. However, the Senate Report gives a precision on that matter Indeed, Government employees are, under Section 4(11) of the amended Act, to be considered as "third parties". Consequently, they can benefit of the $500 million

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[73] CSLAct Amendments Section 16 (a) (1) (D).

[74] As we have seen previously, this latter provision required $100 million protection for damage to Government property.

insurance required from the licensee under Section 16 (a) (1) (A) of the amended Act. The Senate considered that Government employees should keep their right of claim, above this $500 million limit. Thus, the Senate Report states[75]: " The Secretary is not permitted to waive any claims on behalf of Government employees, whose rights will not be affected".

Thus, there is a difference in the text of the amended Act, between Government property and Government personnel. In case of damage to the first, the Government shall waive claims above the insurance limit. In case of damage to the second, the Government cannot waive claims on behalf of its employees. This difference appears clearly from the Senate Report.

* ***Policy exclusion***

In that case, for a certain type of risk, no insurance can be obtained by the licensee because insurer do not cover this risk (war risk, radio wave interference...). Section 16 (a) (1) (D) provides that " ...the Secretary may also waive, on behalf of the United States and any Federal agency, the right to recover any damages for loss of or damage to property of the United States to the extent insurance is not available by reason of policy exclusions which are determined by the Secretary to be usual for the type of insurance involved". The Senate called the attention of the Secretary on the adequate use of this provision[76].

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[75] Senate Report No 100-593, (1988) USCA, 5525, at 5538.

[76] Senate Report, 5539: "The Committee stresses that this authority is discretionary and expects the Secretary to ensure that the exclusions are in fact 'usual' for the type of insurance involved. This provision should not be an inducement for commercial insurers to begin restricting the scope of coverage

e) Government indemnification

As we have explained so far, licensees are required to provide a maximum amount of insurance to cover damage to third-parties and to Government property. The next question to examine is thus: what happens when the amounts to be paid as consequence of a damage relating to a launch by the licensee, exceed these maximum amounts ? The answer to this question is the major provision of the amendments to the Commercial Space Launch Act. Indeed, it would not be enough to require a certain amount of insurance coverage from the licensees, if the latter were to be held unlimitedly liable above that level. The real expectation of the launch industry was to see the Government share the risks with them. This is exactly what is provided for in the amended Act. Section 16 (b) (1) provides for Government indemnification in the following conditions. First this indemnification concerns third-party claims only. Second, it covers damage resulting from activities carried out under the license[77]: it is, thus, in the interest of the licensee to make the scope of the license as broad as possible to encompass the maximum of its

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offered in launch insurance contracts".

[77] The type of damage covered are death, bodily injury, or loss of or damage to property resulting from activities carried out under the license It is interesting to not that here the expression "bodily injury" is used while elsewhere the expression "personal injury" is used. Consequently, there is no doubt that damage that could be personal but not bodily would not be covered (moral damage, pain and suffering ..).

activities relating to the launch[78]. It also covers expenses of litigation or settlement, as long as they are reasonable. Third, Government indemnification is provided on top of the maximum insurance coverage. It is only in case claims are in excess of this amount that Government indemnification is available[79]. Finally, Government indemnification is capped at a maximum of $ 1.5 billion. This amount is the maximum for each particular launch. It is important to stress here that Government will pay the successful claims only[80].

As the Senate Reports states, the system works in the following manner: " *The initial successful claims will be satisfied by the insurance that each launch operator is required to maintain. To the extent that claims against the licensee or other parties subject to this legislation exceed the total liability insurance and self-insurance required by the license, the Government will provide the payments to satisfy the claims. The Government's responsibility in this area ceases once the aggregate of the successful claims in any one incident exceeds the combination of the total insurance and self-insurance required and $1,500 million. At this point, the Government would no longer be responsible for payment and all further relief will be the responsibility of private entities*"[81]. However, taking into account the past experience in the area of

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[78] The launch provider would be unlimitedly liable for damage caused by activities that are not included in the scope of the license.

[79] Section 16 (b) (1) also provides that in case there is no insurance provided because of policy exclusion, there is Government indemnification for the whole claim without regard to the limitation of subparagraph (A).

[80] Amended Act Section 16 (b) (1).

[81] Senate Report, 5541.

expendable launches, it appears that such an tremendous amount of damage is very unlikely to happen.

Finally, it is important to note that these provisions concerning Government indemnification do not apply when the damage have been caused by the wilful misconduct of the licensee.

CONCLUSION

The purpose of this thesis was to examine the legal constraints in which the private launch industry exercises its activities. Thus, from a purely legal point of view[1], the progress made since the beginning of the 1980's, and particularly since 1984, is tremendous. From a situation of disorganized uncertainty, a centralized system has been developed. Centralized institutionally speaking, since one single administration is in charge of licensing commercial space launches. Centralized legally speaking, since a single body of legislation and rules apply to this activity. This gives to the companies on the market, assurance of a certain and predictable set of rules applicable to their activities. No particular delays seem to occur in the granting of licenses, so that the current legislation does not appear to be a disadvantage for companies in comparison with their foreign competitors. In fact, the whole legislation and regulations have been tailored in such a way that the obtention of licenses is facilitated, from a time point of view as well as a practical point of view. The main difficulty faced by the industry has been that related to liability and insurance. It has been solved by the Commercial Space Launch Act Amendments, the cooperation offered by OCST and the support given by the insurance industry[2].

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[1] Without mentioning the state of the launch market from a policy point of view, particularly since the entry into the market of China and the Soviet Union, and the consolidated market position of Ariancspace, major competitor to the US launch providers.

[2] P.D.Nesgos, "Satellite Launch Liability Risks" Business Insurance, October 29, 1990, at 25.

Thus, the United States now has the most elaborated domestic space law legislation in the world, relating to commercial space launches, but also satellite communications and remote-sensing activities. As far as launch services are concerned, the legislation has proved to be workable, included its insurance provisions. As of October 1990, 20 licenses had been issued by the Government.

The situation of the United States also shows that, even though the launch industry is now experienced, it is still not "grown up". This constatation is not limited to the United States. It is also to be said about Europe, and a fortiori Soviet Union. Development, construction and operation of a launcher needs tremendous investment for a profit which, if it comes, will come many years later. Private companies still cannot afford the entire financing of the launch activity. In Europe, the development costs of the Ariane launcher are still borne by the European Space Agency and the launch facilities, owned by ESA and France, are used by Arianespace under favourable conditions. Also, the amount of insurance coverage required from Arianespace is limited[3]. Some US companies complained about what they considered as subsidies given to Arianespace. However, it appears that the situation is the same in United States. The Commercial Space Launch Act gave private launch companies complete responsibility for their activities. However, this proved to be unworkable since these companies were not able to face unlimited liability.Thus, a part of Government support has appeared to be necessary to help this nascent industry take off the ground. Insurance coverage required has been

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[3] See in Introduction references quoted about Ariane and Arianespace

capped, Government launch facilities are put at the disposal of launch companies in favourable conditions, and developed launchers have been transferred by NASA to private companies[4]. States are thus still very much involved in expendable launch activities, even in countries where a movement of privatization of these activities has taken place.

This analysis of the United States legislation is also interesting from a space law point of view. It shows that the continuous control and supervision required from States by the Outer Space Treaty, can be implemented in very different manners. In Europe, the control is institutional. The activities of Arianespace, and particularly their compliance with international space law, are controlled through a series of institutional links that Arianespace has with the French State and the European Space Agency[5]. Consequently, no legislation has been needed to regulate launch authorizations since the company is not free to enter activities which would not be accepted by France or ESA. In United States, the spirit of State supervision has been different. Private companies wished to enter the market of launch services but the Government had no institutional link with them. Thus, in United States, the control is a regulatory control. The United States had to pass laws and issue regulations in order to supervise activities of private launch companies, as required under the Outer Space Treaty. The history of the private involvement in expendable

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[4] Except for small companies, which developed their own launchers. It should be noted, however, that they benefited of NASA technology in some cases.

[5] This situation is the result of the conditions under which Arianespace was born.

launch services, both in Europe and in United States, thus explains the differences in the implementation of their duty of control.

It is also to be noted here, that the increasing involvement of private entities in space activities, launches as well as communications, remote-sensing and material processing, is at the origin of a recent tendency of space law: the emergence of a domestic space law[6].

Finally, it should be noted that this thesis has concentrated on the legal aspects of relations private launch companies/Governments, namely "administrative law". Consequently, the fundamental and fascinating issue of inter-enterprises relations, especially as far as liability is concerned (product liability, liability for launch failures...) has been intentionally set aside[7].

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[6] See: S.Gorove, "The Growth of Domestic Space Law: A US Example", (1990) Vol 18 No2 *Journal of Space Law*, 99-111; N.C.Goldmann, " Advances in Domestic Space Law", (July 1990) *Trial*, 28-33.

[7] See: R.L.Kissick, "Commercial Space Launch Contracts: Disputes and Remedies", (1989) 4 *Journal of Law & Technology*, 31-42; P.D.Nesgos, "Managing Liability Risks in US Commercial Space Transportation", paper presented at Assicurazioni Generali, Fifth International Conference on Space Insurance, Rome, March 1987; P.D.Nesgos, "Launch Liability Insurance and Contractual Risk Allocation", Houston Space and Telecomm Symposium, June 7-9, 1987.

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ANNEXES

- Document 1: Executive Order 12465, February 24, 1984.
- Document 2: Commercial Space Launch Act, 1984.
- Document 3: When is a license required? (Chart).
- Document 4: Overview of the licensing procedure (OCST Chart).
- Document 5: Information required for safety review.
- Document 6: Overview of licensing procedures for communication satellites and remote-sensing satellites.
- Document 7: Commercial Space Launch Act Amendments of 1988.

DOCUMENT 2 . COMMERCIAL SPACE LAUNCH ACT 1984

Public Law 98-575
(98th Congress)

October 30, 1984

The "Commercial Space Launch Act" of 1984.

Findings

Section 2. The Congress finds and declares –

(1) the peaceful uses of outer space continue to be of great value and to offer benefits to all mankind,

(2) private applications of space technology have achieved a significant level of commercial and economic activity, and offer the potential for growth in the future, particularly in the United States;

(3) new and innovative equipment and services are being sought, created, and offered by entrepreneurs in telecommunications, information services, and remote sensing technology.

(4) the private sector in the United States has the capability of developing and providing private satellite launching and associated services that would complement the launching and associated services now available from the United States Government,

(5) the development of commercial launch vehicles and associated services would enable the United States to remain in competitive position internationally, thereby contributing to the national interest and economic well-being of the United States;

(6) provision of launch services by the private sector is consistent with the national security interests and foreign policy interests of the United States and would be facilitated by stable, minimal, and appropriate regulatory guidelines that are fairly and expeditiously applied; and

(7) the United States should encourage private sector launches and associated services and, only to the extent necessary, regulate such launches and services in order to ensure compliance with international obligations of the United States and to protect the public health and safety, safety of property, and national security interests and foreign policy interests of the United States

Purposes

Section 3. It is therefore the purpose of this Act –

(1) to promote economic growth and entrepreneurial activity through utilization of the space environment for peaceful purposes,

(2) to encourage the United States private sector to provide launch vehicles and associated launch services by simplifying and expediting the issuance and transfer of commercial launch licenses and by facilitating and encouraging the utilization of Government-developed space technology; and

(3) to designate an executive department to oversee and coordinate the conduct of commercial launch operations, to issue and transfer commercial launch licenses authorizing such activities, and to protect the public health and safety, safety of property, and national security interests and foreign policy interests of the United States.

Definitions

Section 4 For purposes of this Act –

(1) "agency" means an executive agency as defined by section 105 of title 5, United States Code;

(2) "launch" means to place, or attempt to place, a launch vehicle and payload, if any, in a suborbital trajectory, in Earth orbit in outer space, or otherwise in outer space;

(3) "launch property" means propellants, launch vehicles and components thereof, and other physical items constructed for or used in the launch preparation or launch of a launch vehicle,

(4) "launch services" means those activities involved in the preparation of a launch vehicle and its payload for launch and the conduct of a launch.

(5) "launch site" means the location on Earth from which a launch takes place, as defined in any license issued or transferred by the Secretary under this Act, and includes all facilities located on a launch site which are necessary to conduct a launch;

(6) "launch vehicle" means any vehicle constructed for the purpose of operating in, or placing a payload in, outer space and any suborbital rocket.

(7) "payload" means an object which a person undertakes to place in outer space by means of a launch vehicle, and includes subcomponents of the launch vehicle specifically designed or adapted for that object;

(8) "person" means any individual and any corporation, partnership, joint venture, association, or other entity organized or existing under the laws of any State or any nation,

(9) "Secretary" means the Secretary of Transportation,

(10) "State", and "United States" when used in a geographical sense, mean the several States, the District of Columbia, the Commonwealth of Puerto Rico, American Samoa, the United States Virgin Islands, Guam, and any other commonwealth, territory, or possession of the United States, and

(11) "United States citizen" means –

(A) any individual who is a citizen of the United States,

(B) any corporation, partnership, joint venture, association, or other entity organized or existing under the laws of the United States or any State; and

(C) any corporation, partnership, joint venture, association, or other entity which is organized or exists under the laws of a foreign nation, if the controlling interest (as defined by the Secretary in regulations) in such entity is held by an individual or entity described in subparagraph (A) or (B)

GENERAL RESPONSIBILITIES OF THE SECRETARY AND OTHER AGENCIES

Sec. 5. (a) The Secretary shall be responsible for carrying out this Act, and in doing so shall –

(1) encourage, facilitate, and promote commercial space launches by the private sector; and

(2) consult with other agencies to provide consistent application of licensing requirements under this Act and to ensure fair and equitable treatment for all license applicants.

(b) To the extent permitted by law, Federal agencies shall assist the Secretary, as necessary, in carrying out this Act

REQUIREMENT OF LICENSE FOR PRIVATE SPACE LAUNCH OPERATIONS

Sec. 6. (a)(1) No person shall launch a launch vehicle or operate a launch site within the United States, unless authorized by a license issued or transferred under this Act.

(2) No United States citizen described in subparagraph (A) or (B) of section 4(11) shall launch a launch vehicle or operate a launch site outside the United States, unless authorized by a license issued or transferred under this Act

(3)(A) No United States citizen described in subparagraph (C) of section 4(11) shall launch a launch vehicle or operate a launch site on any place which is both outside the United States and outside the territory of any foreign nation, unless authorized by a license issued or transferred under this Act The preceding sentence shall not apply with respect to a launch or operation of a launch site if there is an agreement in force between the United States and a foreign nation which provides that such foreign nation shall exercise jurisdiction over such launch or operation.

(B)(i) Except as provided in clause (ii) of this subparagraph, this Act shall not apply to the launch of a launch vehicle or the operation of a launch site in the territory of a foreign nation by a United States citizen described in subparagraph (C) of section 4(11)

(ii) If there is an agreement in force between the United States and a foreign nation which provides that the United States shall exercise jurisdiction over the launch of a launch vehicle or operation of a launch site in the territory of such nation by a United States citizen described in subparagraph (c) of section 4(IV), no such United States citizen shall launch a launch vehicle or operate a launch site in the territory of such nation, unless authorized by a license issued or transferred under this Act.

(b)(1) The holder of a launch license under this Act shall not launch a payload unless that payload complies with all requirements of the Federal law that relate to the launch of a payload The Secretary shall ascertain whether any license, authorization, or other permit required by Federal law for a payload which is to be launched has been obtained

(2) If no payload license, authorization, or permit is required by any Federal law, the Secretary may take such action under this Act as the Secretary deems necessary to prevent the launch of a payload by a holder of a launch license under this Act if the Secretary determines that the launch of such payload would jeopardize the public health and safety, safety of property, or any national security interest or foreign policy interest of the United States

(c)(1) Except as provided in this Act, no person shall be required to obtain from any agency a license, approval, waiver, or exemption for the launch of a launch vehicle or the operation of a launch site

(2) Nothing in this act shall affect the authority of the Federal Communications Commission under the Communications Act of 1934 (47 U.S.C 151 et seq.) or the authority of the Secretary of Commerce under the Land Remote Sensing Commercialization Act of 1984 (15 U.S.C 4201 et seq.)

Authority to Issue and Transfer Licenses

Section 7 The Secretary may, consistent with the public health and safety, safety of property, and national security interests and foreign policy interests of the United States, issue or transfer a license for launching one or more launch vehicles or for operating one or more launch sites, or both, to an applicant who meets the requirements for a license under section 8 of this Act Any license issued or transferred under this section shall be in effect for such period of time as the Secretary may specify, in accordance with regulations issued under this Act

Licensing Requirements

Section 8 (a)(1) All requirements of Federal law which apply to the launch of a launch vehicle or the operation of a launch site shall be requirements for a

license under this Act for the launch of a launch vehicle or the operation of a launch site, respectively, except to the extent provided in paragraph (2).

(2) If the Secretary determines, in consultation with appropriate agencies, that any requirement of Federal law that would otherwise apply to the launch of a launch vehicle or the operation of a launch site is not necessary to protect the public health and safety, safety of property, and national security interests and foreign policy interests of the United States, the Secretary may by regulation provide that such requirement shall not be a requirement for a license under this Act.

(b) The Secretary may, with respect to launches and the operations of launch sites, prescribe such additional requirements as are necessary to protect the public health and safety, safety of property, and national security interests and foreign policy interests of the United States.

(c) The Secretary may, in individual cases, waive the application of any requirement for a license under this section if the Secretary determines that such waiver is in the public interest and will not jeopardize the public health and safety, safety of property, or any national security interest or foreign policy interest of the United States.

License Application and Approval

Section 9. (a) Any person may apply to the Secretary for issuance or transfer of a license under this Act, in such form and manner as the Secretary may prescribe. The Secretary shall establish procedures and timetables to expedite review of applications under this section and to reduce regulatory burdens for applicants.

(b) The Secretary shall issue or transfer a license to an applicant if the Secretary determines in writing that the applicant complies and will continue to comply with the requirements of this Act and any regulation issued under this Act. The Secretary shall include in such license such conditions as may be necessary to ensure compliance with this Act, including an effective means of on-site verification that a launch or operation of a launch site conforms to representations made in the application for a license or transfer of a license. The Secretary shall make a determination on any application not later than 180 days after receipt of such application. If the Secretary has not made a determination within 180 days after receipt of such application, the Secretary shall inform the applicant of any pending issues and of actions required to resolve such issues.

(c) The Secretary, any officer or employee of the United States, or any person with whom the Secretary has entered into a contract under section 14(b) of this Act may not disclose any data or information under this Act which qualifies for exemption under section 552(b)(4) of title 5, United States Code, or is designated as confidential by the person or agency furnishing such data or information, unless the Secretary determines that the withholding of such data or information is contrary to the public or national interest.

Suspension, Revocation, and Modification of Licenses

Section 10. (a) The Secretary may suspend or revoke any license issued or transferred under this Act if the Secretary finds that the licensee has substantially failed to comply with any requirement of this Act, the license, or any regulation issued under this Act, or that the suspension or revocation is necessary to protect the public health and safety, safety of property, or any national security interest or foreign policy interest of the United States.

(b) Upon application by the licensee or upon the Secretary's own initiative, the Secretary may modify a license issued or transferred under this Act, if the Secretary finds that the modification will comply with the requirements of this Act.

(c) Unless otherwise specified by the Secretary, any suspension, revocation, or modification by the Secretary under this section –

(1) shall take effect immediately, and

(2) shall continue in effect during any review of such action under section 12 of this Act.

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

Emergency Orders

Section 11. (a) The Secretary may terminate, prohibit, or suspend immediately the launch of a launch vehicle or the operation of a launch site which is licensed under this Act if the Secretary determines that such launch or operation is detrimental to the public health and safety, safety of property, or any national security interest or foreign policy interest of the United States.

(b) An order terminating, prohibiting, or suspending any launch or operation of a launch site, licensed by the Secretary under this Act, shall take effect immediately and shall continue in effect during any review of such order under section 12.

Administrative and Judicial Review

Section 12. (a)(1) An applicant for a license and a proposed transferee of a license under this Act shall be entitled to a determination on the record after an opportunity for a hearing in accordance with section 554 of title 5, United States Code, of any decision of the Secretary under section 9(b) to issue or transfer a license with conditions or to deny the issuance or transfer of such license. Any owner or operator of a payload shall be entitled to a determination on the record after an opportunity for a hearing in accordance with section 554 of title 5, United States Code, of any decision of the Secretary under section 6(b)(2) to prevent the launch of such payload.

(2) A licensee under this Act shall be entitled to a determination on the record after an opportunity for a hearing in accordance with section 554 of title 5, United States Code, of any decision of the Secretary –

(A) under section 10 to suspend, revoke, or modify a license; or

(B) under section 11 to terminate, prohibit, or suspend any launch or operation of a launch site licensed by the Secretary.

(b) Any final action of the Secretary under this Act to issue, transfer, deny the issuance or transfer of, suspend, revoke, or modify a license or to terminate, prohibit, or suspend any launch or operation of a launch site licensed by the Secretary or to prevent the launch of a payload shall be subject to judicial review as provided in chapter 7 of title 5, United States Code.

Regulations

Section 13. The Secretary may issue such regulations, after notice and comment in accordance with section 553 of title 5, United States Code, as may be necessary to carry out this Act.

Monitoring of Activities of Licensees

Section 14. (a) Each license issued or transferred under this Act shall require the licensee –

(1) to allow the Secretary to place Federal officers or employees or other individuals as observers at any launch site used by the licensee, at any production facility or assembly site used by a contractor of the licensee in the production or assembly of a launch vehicle, or at any site where a payload is integrated with a launch vehicle, in order to monitor the activities of the licensee or contractor at such time and to such extent as the Secretary considers reasonable and necessary to determine compliance with the license or to carry out the responsibilities of the Secretary under section 6(b) of the Act, and

(2) to cooperate with such observers in the performance of monitoring functions.

(b) The Secretary may, to the extent provided in advance by appropriation Acts, enter into a contract with any person to carry out subsection (a)(1) of this section.

Use of Government Property

Section 15. (a) The Secretary shall take such actions as may be necessary to facilitate and encourage the acquisition (by lease, sale, transaction in lieu of sale, or otherwise) by the private sector of launch property of the United States which is excess or is otherwise not needed for public use and of launch services, including utilities, of the United States which are otherwise not needed for public use.

(b)(1) The amount to be paid to the United States by any person who acquires launch property or launch services, including utilities, shall be the fair market value. In the case of any other type of acquisition of launch property, the amount of such payment shall be an amount equal to the direct costs (including any specific wear and tear and damage to the property) incurred by the United States as a result of the acquisition of such launch property. In the case of any acquisition of launch services, including utilities, the amount of such payment shall be an amount equal to the direct costs (including salaries of United States civilian and contractor personnel) incurred by the United States as a result of the acquisition of such launch services.

(2) The Secretary may collect any payment for launch property or launch services, with the consent of the agency establishing such payment under paragraph (1).

(3) The amount of any payment received by the United States for launch property or launch services, including utilities, under this subsection shall be deposited in the general fund of the Treasury and the amount of a payment for launch property (other than launch property which is excess) and launch services (including utilities) shall be credited to the appropriation from which the cost of providing such property or services was paid.

(c) The Secretary may establish requirements for liability insurance, hold harmless agreements, proof of financial responsibility, and such other assurances as may be needed to protect the United States and its agencies and personnel from liability, loss, or injury as a result of a launch or operation of a launch site involving Government facilities or personnel.

Liability Insurance

Section 16. Each person who launches a launch vehicle or operates a launch site under a license issued or transferred under this Act shall have in effect liability insurance at least in such amount as is considered by the Secretary to be necessary for such launch or operation, considering the international obligations of the United States. The Secretary shall prescribe such amount after consultation with the Attorney General and other appropriate agencies.

Enforcement Authority

Section 17. (a) The Secretary shall enforce this Act. The Secretary may delegate the exercise of any enforcement authority under this act to any officer or employee of the Department of Transportation, with the approval of the head of another agency, any officer or employee of such agency.

(b) In carrying out this section, the Secretary may—

(1) make investigations and inquiries, and administer to or take from any person an oath, affirmation, or affidavit, concerning any matter relating to enforcement of this Act; and

(2) pursuant to any lawful process

(A) enter at any reasonable time any launch site, production facility, or assembly site of a launch vehicle, or any site where a payload is integrated with a launch vehicle, for the purpose of inspecting any object which is subject to this Act and any records or reports required by the Secretary to be made or kept under this Act; and

(B) seize any such object, record, or report where there is probable cause to believe that such object, record, or report was used, is being used, or is likely to be used in violation of this Act.

Prohibited Acts

Section 18. It is unlawful for any person to violate a requirement of this Act, a regulation issued under this Act, or any term, condition, or restriction of any license issued or transferred by the Secretary under this Act.

Civil Penalties

Section 19. (a) Any person who is found by the Secretary, after notice and opportunity to be heard on the record in accordance with Section 554 of Title 5, United States Code, to have committed any act prohibited by Section 18 shall be liable to the United States for a civil penalty of not more than $100,000 for each violation. Each day of a continuing violation shall constitute a separate violation. The amount of such civil penalty shall be assessed by the Secretary by written notice. The Secretary may compromise, modify, or remit, with or without conditions, any civil penalty which is subject to imposition or which has been imposed under this section.

(b) If any person fails to pay a civil penalty assessed against such person after the penalty has become final or if such person appeals an order of the Secretary and the appropriate court has entered final judgment in favor of the Secretary, the Secretary shall recover the civil penalty assessed in any appropriate district court of the United States.

(c) For purposes of conducting any hearing under this section, the Secretary may (1) issue subpoenas for the attendance and testimony of witnesses and the production of relevant papers, books, documents, and other records, (2) seek enforcement of such subpoenas in the appropriate district court of the United States, and (3) administer oaths and affirmations.

Consultation

Section 20. (a) The Secretary shall consult with the Secretary of Defense on all matters, including the issuance or transfer of each license, under this Act affecting national security. The Secretary of Defense shall be responsible for identifying and notifying the Secretary of those national security interests of the United States which are relevant to activities under this Act.

(b) The Secretary shall consult with other agencies, as appropriate, in order to carry out the provisions of this Act.

Relationship to Other Laws and International Obligations

Section 21. (a) No State or political subdivision of a State may adopt or have in effect any law, rule, regulation, standard, or other which is inconsistent with the provisions of this Act. Nothing in this Act shall preclude a State or a political subdivision of a State from adopting or putting into effect any law, rule, regulation, standard, or which is consistent with this Act and is in addition to or more stringent than any requirement of or regulation issued under this Act. The Secretary may, and is encouraged to, consult with the States to simplify and expedite the approval of space launch activities.

(b) A launch vehicle or payload shall not, by reason of the launching of such vehicle or payload, be considered an export for purposes of any law controlling exports.

(c) Nothing in this Act shall apply to—

(1) any—

(A) launch or operation of a launch vehicle,

(B) operation of a launch site, or

(C) other space activity,

carried out by the United States on behalf of the United States, or

(2) any planning or policies relating to any such launch, operation, or activity.

(d) The Secretary shall carry out this Act consistent with any obligations assumed by the United States in any treaty, convention, or agreement that may be in force between the United States and a foreign nation. In carrying out this Act, the Secretary shall consider applicable laws and requirements of any foreign nation.

Report on Legislation

Section 22. (a) Not later than the last day of each fiscal year ending after the date of enactment of this Act and before October 1, 1989, the Secretary shall submit to the Committee on Science and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report describing all activities undertaken under this Act, including a description of the process for the application for an approval of licenses under this Act and recommendations for legislation that may further commercial launches.

(b) Not later than July 1, 1985, the Secretary shall submit to the Committee on Science and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report which identifies Federal statutes, treaties, regulations, and policies which may have an adverse effect on commercial launches and include recommendations on appropriate changes thereto.

Severability

Section 23. If any provision of this Act, or the application of such provision to any person or circumstance, is held invalid, the remainder of this Act and the application of such provision to any other person or circumstance shall not be affected by such invalidation.

Authorized Appropriations

Section 24. There are authorized to be appropriated to the Secretary $4,000,000 for fiscal year 1985.

Effective Date

Section 25. (a) Except for Section 15 and the authority to issue regulations, this Act shall take effect 180 days after the date of enactment of this Act.

(b) Section 15 shall take effect on the date of enactment of this Act, except that nothing in this Act shall affect any agreement, including negotiations which are substantially completed, relating to the acquisition of launch property or launch services of the United States entered into on or before the date of enactment of this Act between the United States and any private party.

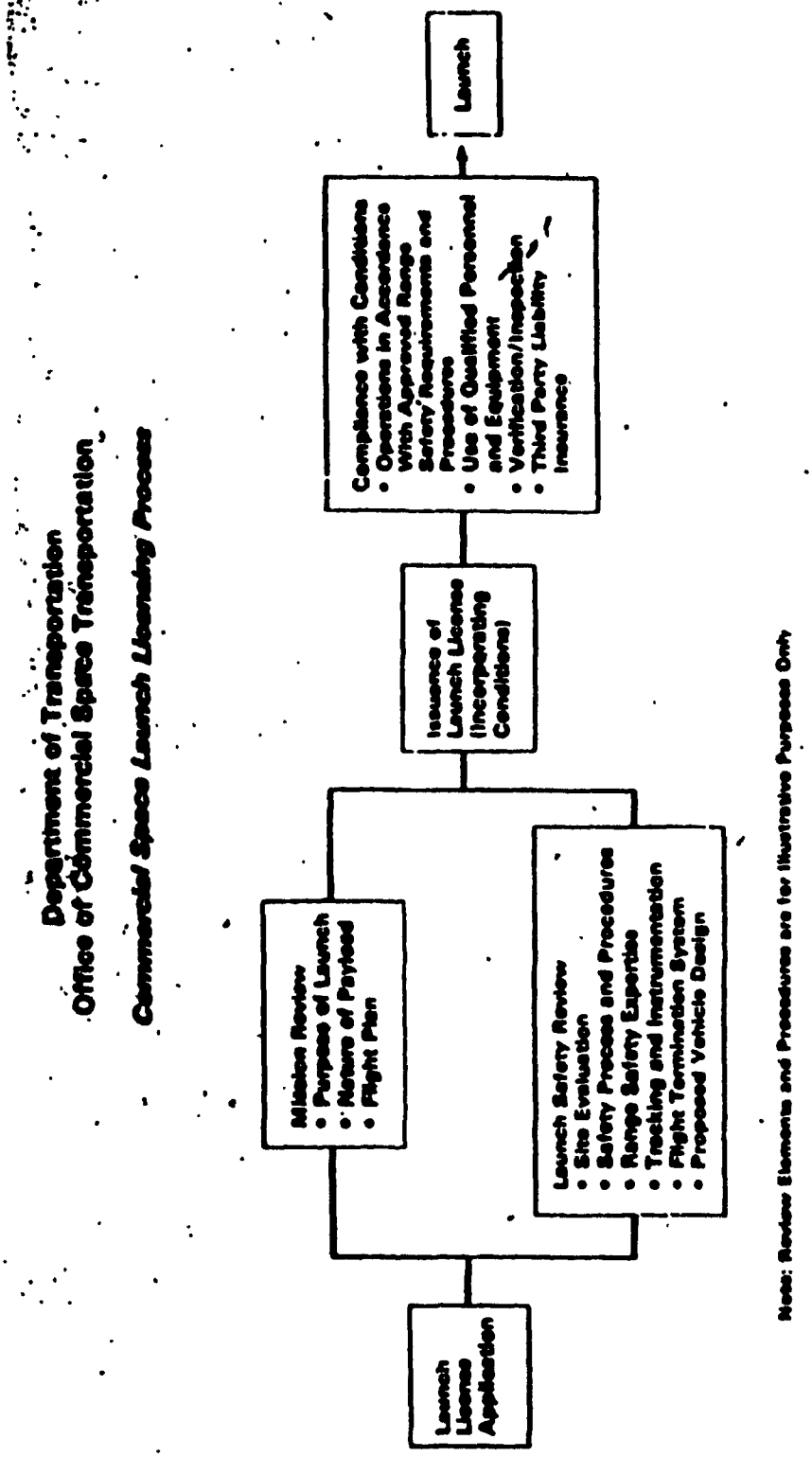
(c) Regulations to implement this Act shall be promulgated not later than 180 days after the date of enactment of this Act.

DOCUMENT 3 .

WHEN IS A LICENSE REQUIRED FOR PRIVATE LAUNCH OPERATIONS ?

	US CITIZEN	US CITIZEN (CONTROLLED)	NON US CITIZEN
DEFINITION	Section 4(11) Act Subparagraph (A)&(B)	Section 4(11) Act Subparagraph (C)	Residual
FROM US TERRITORY	License required	License required	License required
INTERNATIONAL AIRSPACE	License required	License required Exception:Existence of an agreement USA/foreign nation giving jurisdiction over the launch to the foreign nation.	No license required
HIGH SEAS	License required	License required Exception.Existence of an agreement USA/foreign nation giving jurisdiction over the launch to the foreign nation.	No license required
FOREIGN TERRITORY	License required	No license required Exception:Existence of an agreement USA/foreign nation giving jurisdiction over the launch to the United States.	No license required

DOCUMENT 4 OVERVIEW OF THE LICENSING PROCEDURE



DOCUMENT 5. APPENDIX.- COMMERCIAL SPACE LAUNCHES: INFORMATION REQUIRED FOR APPLICATIONS. (EXTRACT). (1988) Vol 53 *Fed Reg* 1101[1].

II.- SAFETY REVIEW.

(A) LAUNCHES FROM FEDERAL OR LICENSED LAUNCH SITES.

Applicants proposing to launch from Federal launch ranges or commercial sites operated under the authority of a license issued by the Office must provide.

1) Documentation verifying that the applicant has been accepted by the operator of a launch range or site appropriate for the proposed mission and

2) A statement identifying the party (operator or applicant) responsible for conducting or providing, whether in whole or in part, any element of safety operations discussed in §§ 415.11 and 415.13 of the regulations, 14 CFR 415.11 and 415.13. In instances where the applicant will assume primary responsibility for one of these elements, detailed information must be provided describing how responsibility and accountability for safety will be assigned between the operator and applicant; and

3) An analysis of any hazardous activity that will be solely under the control of the commercial applicant, such as orbital transfer stage operations The analysis must describe the specific hazards associated with the activity and procedures planned to minimize public exposure to such hazards.

B) OTHER LAUNCHES.

All applicants not covered by paragraph (A) of this section must provide a Safety Analysis of their proposed operations in sufficient detail for the Office to conduct in depth review of safety operations, as discussed in §§ 411.3, 411.5 and 415.11-415.17 of the regulations, 14 CFR 411.3, 411.5, 415.11-415.17. The applicant's Safety Analysis must identify and evaluate all hazards to public health and safety or to off-site property that may occur during prelaunch, launch or on-orbit operations; procedures to be employed to control the hazards identified; qualification of range safety personnel and other critical personnel responsible for assuring hazard controls, design characteristics of range safety systems (flight and ground) and their effectiveness in assuring a safe launch operation, and any residual risks to public health and safety or to off-site property that may be associated with the applicants proposed launch operations. The following information typifies the data that should be addressed and included in the application·

1) An identification and description of the launch site from which the proposed launch will take place, specifically describing.

(i) The location, size, shape and general characteristics of the site,

(ii) The proximity to populated areas,

(iii) Any local activities that may be affected by the launch such as air traffic, shipping, and off-shore fishing; and

(iv) Proposed launch corridors from the site and predicted impact areas.

2) A description of the role and responsibilities of personnel performing safety or safety related functions for the proposed launch operation Details should include·

(i) A description of the planned organization, key personnel, and lines of authority and responsibility for accomplishing prelaunch and launch safety functions,

(ii) The methodology proposed for selection, training and testing of the Launch Safety Office and other key personnel critical to assuring Launch Safety Systems readiness for launch, as well as prior experience, training, etc. of such personnel,

(iii) Description and explanation of how the methodology proposed relates to assuring the successful control of the proposed launch.

3) A description of tracking and/or data acquisition equipment to be used for safety purposes. This description should include:

(i) An identification of the types of tracking equipment to be used and their performance capabilities;

(ii) The location and placement of equipment, and

(iii) The types, performance, capabilities and specifications of other aids to be used including computational equipment, display systems, and recording systems.

4) A description of proposed flight safety systems including

(i) The type, design and performance specifications of the flight termination system including transmitters, receivers, ordinance etc.;

(ii) Schematics and wiring diagrams;

and

(iii) Certification and verification procedures for the proposed flight safety system.

(5) Documents outlining the proposed process and procedures to be followed for prelaunch ground safety, flight safety analysis, and flight safety operations, including copies of safety analyses performed to determine potential impacts, establish destruct criteria, unique hazards identified, etc. Examples of documents to be included are set forth below:

(i) Description of ground safety measures taken to protect public safety;

(ii) Flight safety analysis performed, analytical models used, etc. In order to demonstrate efficacy of the proposed process, the applicant is requested to provide examples of safety analyses it has performed to determine potential impacts, establish flight termination criteria, identify/control unique hazards, etc.;

(iii) Flight safety operation to be conducted, criteria proposed for flight termination, practice and testing exercises to be performed, emergency procedures etc.;

(iv) Quality control and testing procedures for critical safety equipment/components including tracking and flight termination, and

(v) Recovery procedures if applicable.

(6) Flight plan data as a function of time for launch vehicle and spacecraft including trajectory, azimuth, flight profile, and orbital elements. Examples of data to be included are set forth below:

(i) Profile plot of the planned flight trajectory, showing altitude versus range and trajectory for each expended stage,

(ii) A plan view of the flight trajectory, showing launch and trajectory azimuth, impact points for each stage, jettisoned component, or other impacting body;

(iii) Launch vehicle ground and IIP ground tracks with respect to all significant land masses shown in true geographical location, and

(iv) Description and definition of orbit.

(7) Description of the launch vehicle and its performance characteristics, as well as a description of any payload with a particular emphasis on hazardous systems. Examples of descriptions to be included are set forth below:

(i) Description of the launch vehicle configuration; major sections and components; weights and dimensions of each, rocket motors and propulsion systems, guidance system for each stage; and destruct system(s),

(ii) Description of payload design sufficient to determine unique flight safety hazards, hazardous materials involved, etc , and

(iii) Thrust time history of each stage, maximum turn rates, plot of estimated vehicle weight versus time, analysis of vehicle integrity to meet flight environment.

(8) Other categories of data as determined by the applicant to demonstrate unique capabilities

(C) ACCIDENTS AND MISSION FAILURES.

All applicants must submit a plan which identifies:

(1) The procedure and criteria proposed for reporting accidents, incidents and mission failures to the Office.

(2) The applicant's investigation process and criteria for impounding data, establishing investigation boards, committees or officials

(3) Individuals responsible for establishing an investigative process and for reporting accidents, incidents, and mission failures to the Office.

DOCUMENT 6. OVERVIEW OF LICENSING PROCEDURES FOR COMMUNICATION SATELLITES AND REMOTE SENSING SATELLITES.

As an annex to the developments on mission review, it is interesting to have in mind the main features of the licensing of communications satellites by FCC and remote sensing satellites by NOAA.

1) COMMUNICATIONS SATELLITES

A private entity which wishes to operate a communications satellite is required to apply for a license under the Communications Act of 1934[1]. Communications regulated by this Act are " communication by...radio which originates and/or is received in the United States". In 1970[2], the FCC considered those provisions applicable to communications satellites. Indeed, satellites communications are communications by radio. The FCC declared the Act applicable to those satellites in so far as the signals relayed by the satellite are either originating or received in the United States. With respect to international

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1 47 CFR 152 and ff. 47 USC 301.

2 Communications Satellites Facilities, *First Report and Order* ("Domsat I"), 22 FCC 2d 86 Appendix C, 1.

communications, the Communications Satellite Act of 1962[3] also applies.

The FCC is the licensing authority for communications satellites[4].

The FCC has issued regulations for the issuance of licenses. Those regulations differ depending on the type of communications satellite concerned. Thus, regulations concerning domestic fixed satellites are contained in 47 CFR 25.391, radiodetermination satellites in 47 CFR 25.392, and direct broadcasting satellites in 47 CFR 100.19.

Applications must be submitted to the FCC and contain all information prescribed by the regulations[5]. Applications must contain a request for construction, launch and operation of the satellite[6] and the satellite cannot be constructed before the construction permit has been granted[7].

The FCC will issue licenses for communications satellites after having determined that this will serve the "public interest"[8]. " This means that the FCC must be satisfied that the public will derive some benefit directly or indirectly from the proposed satellite system"[9]. The applicant must also bring the proof to FCC that

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[3] 47 CFR 701 and ff.

[4] FCC was established under the Communications Act of 1934. Section 1, 47 USC 151.

[5] Domestic fixed satellites: Communications Act Section 308 (b) and 47 CFR 25.391.

[6] Communications Act Sections 308, 309 and 319. 47 USC 308, 309 and 319.

[7] Communications Act Section 319.

[8] Communications Act Sections 308, 309 a) and 319.

[9] P.L. Meredith, "A comparative analysis of United States Domestic Licensing Regimes For Private Commercial Space Activities" (1989) *Colloquium*, 373-

it is "legally, technically, financially and otherwise qualified to proceed expeditiously with the construction, launch and/or operation of each proposed space station facility immediately upon grant of the requested authorization"[10]. The FCC has been very strict on the financial capabilities of the applicants willing to operate domestic fixed satellites. The financial standard is more flexible for international, broadcasting, radiodetermination and mobile satellites[11]. Another rule concerning domestic fixed satellites is that they must not interfere with the transmissions of neighbouring satellites operating in the same frequency band and placed two degrees away on the orbit[12].

Some regulations are related specifically to international fixed satellites. The applicants must respond to the following criteria:

- Their systems must serve the US "national interest"[13]

- " An operating agreement must be obtained with a foreign country permitting down-links (and up-links) for satellite transmissions to (and from) ground stations in that country

- Technical and economic harm coordination with Intelsat under Article XIV (d) of the Intelsat Agreement must be undertaken and

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381. at 375.

[10] Communications Act Section 308 (b), 47 USC 308 (b) and 47 CFR 25.391 (b).

[11] See P.L. Meredith op. cit., at 376.

[12] 47 CFR 26.391 (a). See also: Licensing of Space Stations in the Domestic Fixed Satellite Service, 54 Rad Reg 2d 577 (P&F) (1983).

[13] Communications Satellite Act. Sections 101(d) and 201 (a) (6). 47 USC 701 (d) and 721 (a) (6).

- the satellite transmissions must not interconnect with the public switched network"[14].

The licensing process for communications satellites is quite long (an average of three years).

2) REMOTE SENSING SATELLITES

Remote sensing activities have been subject to privatization during the same period of time than launch services. In 1984 the Land Remote-Sensing Act was passed[15]. Under this act, a license is necessary to operate remote-sensing space systems[16]. The agency in charge of licensing remote-sensing systems is the Department of Commerce[17]. The DOC has delegated this function to the NOAA (National Oceanic and Atmospheric Administration). Regulations with respect to licensing have been issued by NOAA and are published in 15 CFR 960 and ff.

In the same manner as the launch services regulations, remote-sensing regulations issued by NOAA provide for the opportunity for pre-application consultations[18].

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[14] See P.L. Meredith op. cit, at 376.

[15] 15 USC 4201 and ff.

[16] Title IV Land Remote-Sensing Act. Section 402 states: "no person who is subject to the jurisdiction and control of the United States may...operate any private remote-sensing space system without a license..." .

[17] Land Remote-Sensing Act Section 401 (a), 15 USC 4241, Section 104 (2), 15 USC 4204

[18] 15 CFR 960 (4) (a)

In evaluating the applicant's proposal, NOAA will examine two important issues[19]:

- The proposed system must be "consistent with national security and the international obligations of the United States". The question of "national security" has been discussed for remote-sensing activities as well as for launch activities[20]. As far as US international obligations are concerned, of course, all space treaties to which the United States are a party must be complied with by the proposed system. Moreover, even though it is not binding, the UN Resolution on remote-sensing, adopted in 1987[21], should be used as a guideline, for it reflects the international opinion on remote-sensing principles.

- The applicant must undertake to distribute unenhanced remote-sensing data "to all potential users on a non-discriminatory basis..."[22]. Are considered as unenhanced data "unprocessed or minimally processed signals or film products collected from civil remote sensing space systems"[23]. "Non discriminatory basis" is defined as "without preference, bias or any other special arrangement...regarding delivery, format, financing, or technical considerations, which would favour one class of buyers over another"[24]. On this latter notion, some concern has been expressed that

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[19] Land Remote-Sensing Act Section 402 (b). NOAA Regulations Section 960.11

[20] See P.L. Meredith, op.cit., at 376.

[21] UN Res 41/65 Jan 22,1987.

[22] 15 CFR 960.11

[23] Remote Sensing Act Section 104 (4), 15 USC 4202 (4), 15 CFR 960 (3)

[24] Remote Sensing Act Section 104 (3) (A), 15 USC 4202 (3) (A).

it could be an obstacle for commercial operators[25].

As well as in the launch services regulations, remote sensing regulations provide for an intervention of the Secretaries of Defense and State. The regulations give them some sort of a veto right with respect to questions of national security and international obligations[26].

Finally, under the Land Remote-Sensing Act, final decisions on applications must be made within 120 days of the receipt of the application[27].

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[25] See P.L. Meredith, op.cit., at 376.

[26] 15 CFR 960.9. See: P.L. Meredith, op.cit., at 377.

[27] On the Land Remote Sensing Act and regulations see G.H.Reynolds & R.P.Merges, *Outer Space, Problems of Law and Policy* (Boulder, Westview Press Inc, 1989) 299-304.

COMMERCIAL SPACE LAUNCH ACT AMENDMENTS OF 1988

For Legislative History of Act, see p 5525

An Act to facilitate commercial access to space, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Commercial Space Launch Act Amendments of 1988".

SEC. 2. FINDINGS.

The Congress finds that—

(1) a United States commercial space launch industry is an essential component of national efforts to assure access to space for Government and commercial users;

(2) the Federal Government should encourage, facilitate, and promote the use of the United States commercial space launch industry in order to continue United States aerospace preeminence;

(3) the United States commercial space launch industry must be competitive in the international marketplace;

(4) Federal Government policies should recognize the responsibility of the United States under international treaty for activities conducted by United States citizens in space; and

(5) the United States must maintain a competitive edge in international commercial space transportation by ensuring continued research in launch vehicle component technology and development.

SEC. 3. DEFINITIONS.

Section 4 of the Commercial Space Launch Act (49 U.S.C. App. 2603) is amended—

(1) in paragraph (10) by striking "and" at the end;

(2) by redesignating paragraph (11) as paragraph (12); and

(3) by inserting immediately after paragraph (10) the following new paragraph:

"(11) 'third party' means any person or entity other than—

"(A) the United States, its agencies, or its contractors or subcontractors involved in launch services;

"(B) the licensee or transferee;

"(C) the licensee's or transferee's contractors, subcontractors, or customers involved in launch services; or

"(D) any such customer's contractors or subcontractors involved in launch services; and".

SEC. 4. PRIVATE ACQUISITION OF GOVERNMENT PROPERTY AND SERVICES.

(a) Section 15(a) of the Commercial Space Launch Act (49 U.S.C. App. 2614(a)) is amended by adding at the end the following: "In taking such actions, the Secretary shall consider the commercial availability, on reasonable terms and conditions, of substantially equivalent launch property or launch services from a domestic source.".

(b) Section 15(b)(1) of the Commercial Space Launch Act (49 U.S.C. App. 2614(b)(1) is amended by adding at the end the following: "For purposes of this paragraph, the term 'direct costs' means the actual costs that can be unambiguously associated with a commercial launch effort, and would not be borne by the United States Government in the absence of a commercial launch effort.".

(c) Section 15 of the Commercial Space Launch Act (49 U.S.C App. 2614) is amended by adding at the end the following new subsection:

"(d) The head of any Federal agency or department may collect payment for activities involved in the production of a launch vehicle or its payload for launch if such activities were agreed to by the owners or manufacturers of such launch vehicle or payload.".

SEC. 5. INSURANCE REQUIREMENTS OF LICENSEE.

(a) Section 16 of the Commercial Space Launch Act (49 U.S.C. App. 2615) is amended to read as follows:

"LIABILITY INSURANCE

"SEC. 16. (a)(1)(A) Each license issued or transferred under this Act shall require the licensee or transferee—

"(i) to obtain liability insurance; or

"(ii) to demonstrate financial responsibility,

in an amount sufficient to compensate the maximum probable loss (as determined by the Secretary, after consultation with the Administrator of the National Aeronautics and Space Administration, the Secretary of the Air Force, and the heads of other appropriate agencies) from claims by a third party for death, bodily injury, or loss of or damage to property resulting from activities carried out under the license in connection with any particular launch. In no event shall a licensee or transferee be required to obtain insurance or demonstrate financial responsibility under this subparagraph, with respect to the aggregate of such claims arising out of any particular launch, in an amount which exceeds (I) $500,000,000 or (II) the maximum liability insurance available on the world market at a reasonable cost, if such insurance is less than the amount in subclause (I).

"(B) Each license issued or transferred under this Act shall require the licensee or transferee—

"(i) to obtain liability insurance; or

"(ii) to demonstrate financial responsibility,

in an amount sufficient to compensate the maximum probable loss (as determined by the Secretary, after consultation with the Administrator of the National Aeronautics and Space Administration, the Secretary of the Air Force, and the heads of other appropriate agencies) from claims against any person by the United States for loss of or damage to property of the United States resulting from activities carried out under the license in connection with any particular launch. In no event shall a licensee or transferee be required to obtain insurance or demonstrate financial responsibility under this subparagraph, with respect to the aggregate of such claims arising out of any particular launch, in an amount which exceeds (I) $100,000,000 or (II) the maximum liability

insurance available on the world market at a reasonable cost, if such insurance is less than the amount in subclause (I).

"(C) Each license issued or transferred under this Act shall require the licensee or transferee to enter into reciprocal waivers of claims with its contractors, subcontractors, and customers, and the contractors and subcontractors of such customers, involved in launch services, under which each party to each such waiver agrees to be responsible for any property damage or loss it sustains or for any personal injury to, death of, or property damage or loss sustained by its own employees resulting from activities carried out under the license.

"(D) The Secretary, on behalf of the United States, its agencies involved in launch services, and contractors and subcontractors involved in launch services, shall enter into reciprocal waivers of claims with the licensee or transferee, its contractors, subcontractors, and customers, and the contractors and subcontractors of such customers, involved in launch services, under which each party to each such waiver agrees to be responsible for any property damage or loss it sustains or for any personal injury to, death of, or property damage or loss sustained by its own employees resulting from activities carried out under the license. Any such waiver shall apply only to the extent that claims exceed the amount of insurance or demonstration of financial responsibility required under subparagraph (B). After consultation with the Administrator of the National Aeronautics and Space Administration and the Secretary of the Air Force, the Secretary may also waive, on behalf of the United States and any Federal agency, the right to recover any damages for loss of or damage to property of the United States to the extent insurance is not available by reason of policy exclusions which are determined by the Secretary to be usual for the type of insurance involved.

"(2) Any insurance policy obtained, or demonstration of financial responsibility made, pursuant to a requirement described in paragraph (1) shall protect the United States, its agencies, personnel, contractors, and subcontractors, and all contractors, subcontractors, and customers of the licensee or transferee, and all contractors and subcontractors of such customers, involved in providing the launch services, to the extent of their potential liabilities, at no cost to the United States.

"(3) The Secretary shall determine the maximum probable loss under paragraph (1) (A) and (B) associated with activities under a license, within 90 days after a licensee or transferee has required such a determination and has submitted all information the Secretary requires to make such a determination. The Secretary shall amend such determination as warranted by new information. Within 12 months after the date of enactment of the Commercial Space Launch Act Amendments of 1988, and within each 12-month period thereafter, the Secretary shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives a report on the current determinations with respect to all issued licenses and the reasons for those determinations.

"(4) Within 6 months after the date of enactment of the Commercial Space Launch Act Amendments of 1988, and within each 12-month period thereafter, the Secretary shall review the amounts specified in paragraph (1) (A)(I) and (B)(I), and shall submit a report to the Congress which, if appropriate, contains a proposed adjustment to such amounts to conform with altered liability expectations and availability of insurance on the world market. Such proposed adjustment shall take effect 30 days after the submission of such report.

"(b)(1) To the extent provided in advance in appropriations Acts or to the extent there is enacted additional legislative authority to provide for the payment of claims as submitted in the compensation plan outlined in paragraph (4), the Secretary shall provide for the payment by the United States of successful claims (including reasonable expenses of litigation or settlement) of a third party against the licensee or transferee, or its contractors, subcontractors, or customers, or the contractors or subcontractors of such customers, resulting from activities carried out pursuant to a license issued or transferred under this Act for death, bodily injury, or loss of or damage to property resulting from activities carried out under the license, but only to the extent that the aggregate of such successful claims arising out of any particular launch—

"(A) is in excess of the amount of insurance or demonstration of financial responsibilities required under subsection (a)(1)(A); and

"(B) is not in excess of the level that is $1,500,000,000 (plus any additional sums necessary to reflect inflation occurring after January 1, 1989) above such amount.

The Secretary shall not provide for payment of any part of such claim for which the death, bodily injury, or loss of or damage to property has resulted from willful misconduct by the licensee or transferee. To the extent insurance required pursuant to subsection (a)(1)(A) is not available to cover any such successful third party liability claim by reason of insurance policy exclusions determined by the Secretary to be usual for the type of insurance involved, the Secretary may provide for the payment of such excluded claims without regard to the limitation expressed in subparagraph (A).

"(2) The payment of claims under paragraph (1) shall be subject to—

"(A) notice to the United States of any claim, or suit associated with such claim, against a party described in paragraph (1) for death, bodily injury, or loss of or damage to property;

"(B) participation or assistance in the defense by the United States, at its election, of that claim or suit; and

"(C) approval by the Secretary of that portion of any settlement which is to be paid out of appropriated funds of the United States.

"(3) The Secretary may withhold payment under paragraph (1) if the Secretary certifies that the amount is not just and reasonable, except that the amount of any claim determined by the final judgment of a court of competent jurisdiction shall be deemed by the Secretary to be just and reasonable.

"(4)(A) If as a result of activities carried out under a license issued or transferred under this Act the aggregate of the claims arising out of a particular launch are likely to exceed the amount of insurance or demonstration of financial responsibility required under the license, the Secretary shall (i) make a survey of the causes and extent of damage and (ii) expeditiously submit to the Congress a report setting forth the results of such survey.

"(B) Not later than 90 days after any determination by a court indicating that the liability for the aggregate of claims arising out of a particular launch under such a license may exceed the amount of insurance or demonstration of financial responsibility required

under the license, the President, on the recommendation of the Secretary, shall submit to the Congress a compensation plan or plans that (i) outlines the aggregate dollar value of such claims; (ii recommends sources of funding to pay for these claims; and (iii) includes any legislative language required to implement the compensation plan or plans if additional legislative authority is required. No compensation plan for a single event or incident may exceed the aggregate of $1,500,000,000.

"(C) Any compensation plan transmitted to the Congress pursuant to subparagraph (B) shall bear an identification number and shall be transmitted to both Houses of Congress on the same day and to each House while it is in session.

"(D)(i) The provisions of this subparagraph shall apply with respect to consideration in the Senate of any such compensation plan and to Senate action on such compensation plan.

"(ii) Any such compensation plan that requires additional appropriations or additional legislative authority must be considered by the Senate pursuant to this subparagraph within 60 calendar days of continuous session of Congress after the date on which such plan is transmitted to the Congress.

"(iii) For the purposes of this subparagraph, the term 'resolution' means only a joint resolution of Congress the matter after the resolving clause of which is as follows: 'That the approves the compensation plan numbered submitted to the Congress on , 19 .', the first blank space therein being filled with the name of the resolving House and the other blank spaces being appropriately filled; but does not include a resolution which includes more than one compensation plan.

"(iv) A resolution once introduced with respect to a compensation plan shall immediately be referred to a committee (and all resolutions with respect to the same compensation plan shall be referred to the same committee) by the President of the Senate.

"(v)(I) If the committee of the Senate to which a resolution with respect to a compensation plan has been referred has not reported it at the end of 20 calendar days after its referral, it shall be in order to move either to discharge the committee from further consideration of such resolution or to discharge the committee from further consideration with respect to such compensation plan which has been referred to the committee.

"(II) A motion to discharge may be made only by an individual favoring the resolution, shall be highly privileged (except that it may not be made after the committee has reported a resolution with respect to the same compensation plan), and debate thereon shall be limited to not more than one hour, to be divided equally between those favoring and those opposing the resolution. An amendment to the motion shall not be in order, and it shall not be in order to move to reconsider the vote by which the motion was agreed to or disagreed to.

"(III) If the motion to discharge is agreed to or disagreed to, the motion may not be renewed, nor may another motion to discharge the committee be made with respect to any other resolution with respect to the same compensation plan.

"(vi)(I) When the committee has reported, or has been discharged from further consideration of, a resolution, it shall be at any time thereafter in order (even though a previous motion to the same effect has been disagreed to) to move to proceed to the consideration of the resolution. The motion shall be highly privileged and shall not be debatable. An amendment to the motion shall not be in order, and it shall not be in order to move to reconsider the vote by which the motion was agreed to or disagreed to.

"(II) Debate on the resolution referred to in subclause (I) of this clause shall be limited to not more than 10 hours, which shall be divided equally between those favoring and those opposing such resolution. A motion further to limit debate shall not be debatable. An amendment to, or motion to recommit, the resolution shall not be in order, and it shall not be in order to move to reconsider the vote by which such resolution was agreed to or disagreed to.

"(vii)(I) Motions to postpone, made with respect to the discharge from committee, or the consideration of a resolution or motions to proceed to the consideration of other business, shall be decided without debate.

"(II) Appeals from the decision of the Chair relating to the application of the rules of the Senate to the procedures relating to resolution shall be decided without debate.

"(5) The provisions of paragraphs (1) through (4) shall apply only to each license issued or transferred under this Act for which a complete and valid application has been received by the Secretary prior to the date that is 5 years following the date of enactment of the Commercial Space Launch Act Amendments of 1988.

"(c) The head of any Federal agency or department shall collect insurance proceeds or any other payment owed for the loss of or damage to Government property under its jurisdiction or control resulting from activities carried out under a license issued or transferred under this Act. Such proceeds or other payment shall be credited to the current applicable appropriations, funds, or accounts of that agency or department.".

(b) Section 15(c) of the Commercial Space Launch Act (49 U.S.C. App. 2614(c)) is amended to read as follows:

"(c) Consistent with the requirements of this Act, the Secretary shall establish requirements for proof of financial responsibility and such other assurances as may be necessary to protect the United States and its agencies and personnel from liability, death, bodily injury, or loss of or damage to property as a result of a launch or operation of a launch site involving Government facilities or personnel. The Secretary may not under this subsection relieve the United States of liability for death, bodily injury, or loss of or damage to property resulting from the willful misconduct of the United States or its agents.".

SEC. 6. UNITED STATES LAUNCH INCENTIVES FOR CERTAIN SATELLITES.

(a) The requirements of subsection (a)(1)(B) of section 16 of the Commercial Space Launch Act (49 U.S.C. App. 2615), as amended by this Act, shall not apply to eligible satellites.

(b) To the extent approved in appropriations Acts, the United States shall not require payment for the provision of launch services in connection with the commercial launch of an eligible satellite.

(c) For purposes of this section, the term "eligible satellite" means a satellite that—

(1) was under construction on August 15, 1986;

(2) was the subject of a launch services agreement or contract with the National Aeronautics and Space Administration, which as of August 15, 1986, was in effect and not yet carried out; and

(3) is licensed for launch under the Commercial Space Launch Act.

SEC. 7. PREEMPTION OF SCHEDULED LAUNCHES.

Section 15(b) of the Commercial Space Launch Act (49 U.S.C. App. 2614(b)) is amended by adding at the end the following new paragraph:

"(4)(A) The Secretary, with the cooperation of the Secretary of Defense and the Administrator of the National Aeronautics and Space Administration, shall take steps to ensure that the launches of payloads with respect to which a launch date commitment from the United States has been obtained for a launch licensed under this Act are not preempted from access to United States launch sites or launch property, except in cases of imperative national need. Any determination of imperative national need shall be made by the Secretary of Defense or the Administrator of the National Aeronautics and Space Administration, in consultation with the Secretary, and shall not be delegated. A licensee or transferee preempted from access to a launch site or launch property shall not be required to pay to the United States any amount for launch services solely attributable to the scheduled launch prevented by such preemption.

"(B) The Secretary of Defense or the Administrator of the National Aeronautics and Space Administration, in cooperation with the Secretary, as the case may be, shall report to the Congress within 7 days after any determination of imperative national need under subparagraph (A), including an explanation of the circumstances justifying such determination and a schedule for ensuring the prompt launching of a preempted payload."

SEC. 8. STUDY OF PROCESS FOR SCHEDULING LAUNCHES.

The Secretary of Transportation, in cooperation with the Secretary of Defense and the Administrator of the National Aeronautics and Space Administration, and in consultation with representatives of the space launch and satellite industry, shall study ways and means of scheduling Government and commercial payloads on commercial launch vehicles at Government launch sites in a manner which—

(1) makes the best practicable use of the launch property of the United States; and

(2) assures that the launch property of the United States that is available for commercial use will be available on a commercially reasonable basis,

consistent with the objectives of the Commercial Space Launch Act. The Secretary shall report the results of such study to the Congress within 90 days after the date of enactment of this Act.

SEC. 9. COMMERCIAL SPACE LAUNCH SERVICE COMPETITION.

It is the sense of the Congress that the United States should explore ways and means of developing a dialogue with appropriate foreign government representatives to seek the development of guidelines for access to launch services by satellite builders and users in a manner that assures the conduct of reasonable and fair international competition in commercial space activities.

SEC. 10. LAUNCH VEHICLE RESEARCH AND DEVELOPMENT.

The Administrator of the National Aeronautics and Space Administration shall, in consultation with representatives of the space launch and satellite industry, design a program for the support of research into launch systems component technologies, for the purpose of developing higher performance and lower cost United States launch vehicle technologies and systems available for the launch of commercial and Government spacecraft into orbit. The Administrator shall submit a report outlining such program to the Congress within 60 days after the date of enactment of this Act.

SEC. 11. APPLICABILITY TO LICENSES.

This Act, and the amendments made by this Act, shall apply to all licenses issued under the Commercial Space Launch Act before, on, or after the date of enactment of this Act.

Approved November 15, 1988.