FEDERAL GOVERNMENT REGULATION OF COMMERCIAL OPERATIONS USING EXPENDABLE LAUNCH VEHICLES

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For the first quarter century of outer space exploration, space transportation has been an exclusively government function in the United States and elsewhere. American entrepreneurs and traditional aerospace companies with the support and supervision of the Federal Government are now breaking that monopoly in a quest for profits and markets. While some companies are considering operation of manned and reusable space launch vehicles, in the near term commercial operations will be limited to using expendable launch vehicles.

American space transportation ventures using expendable launch vehicles are proceeding now and in response the Federal Government has developed policies and procedures to regulate their activities. While important government officials in both parties and in many agencies have strongly supported the emergence of American commercial space launch operations, these officials have exercised supervision over entrepreneurial activities to protect governmental interests and satisfy international obligations. These emerging procedures for supervision are time-consuming and costly and are sometimes based on creative interpretations of existing regulatory programs, *e.g.,* export licensing. Most importantly, however, these regulatory procedures have allowed proposed entrepreneurial activities to proceed.

I. Summary

Currently, national executive policy, enunciated in the Presidential Space Policy issued on July 4, 1982, is specifically designed to "provide a climate conducive to expanded private sector investment and involvement in space activities."[1]

Private commercial ventures which conduct business activities in outer space are subject to the approval and supervision of agencies of the Federal Aviation Administration ("FAA"), the State Department ("State"), and the Federal Communications Commission ("FCC"). At present there is no single regulatory agency or comprehensive regulatory framework governing private entities doing business in outer space.

On February 24, 1984, President Reagan signed an Executive Order designating the Department of Transportation as the lead agency within the Federal Government for encouraging and facilitating commercial expendable launch vehicle activities by the United States private sector.[2]

Nationally, the FAA, State, and FCC are key regulatory agencies which have jurisdiction over different portions of current and proposed private space activities. Moreover, because of the lack of legislation delineating specific jurisdiction over launch operations, several additional agencies and institutions have influence over the approvals process. These agencies include the U.S. Congress, National Aeronautics and Space

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[1]Presidential Directive/National Security Council NSC-42, July 4, 1982 (Subject: Civil and Further National Space Policy) [hereinafter cited as NSC-42-1982].

[2]Exec. Order No. 12, 465, 49 Fed. Reg. 7211.

Administration ("NASA"), Department of Defense ("Defense"), National Security Council (and others in the intelligence community), Department of Commerce, Office of Management and Budget ("OMB"), Office of Science and Technology Policy ("OSTP"), Cabinet Council on Commerce and Trade, and Senior Interagency Group for Space ("SIG Space"). In current practice, an adverse position or decision from any of these agencies or institutions has the potential for halting any rocket launch program.

A number of bills have been introduced in the U.S. Congress (and more are expected) to regulate and promote private space activities.

The United States participates in a number of international organizations which attempt to execute and implement agreements among national governments concerning space activities.

II. Administration Policy

At the July 4, 1982 ceremonies following the return of the Space Shuttle Columbia, President Reagan announced his Administration's space policy. At the same time, he executed Presidential Directive, NSC-42-1982.[3] In NSC-42-1982, the President established SIG Space, which is chaired by the National Security Advisor. SIG Space has the responsibility for formulating policy for the President's approval regarding outer space issues, particularly those of interest to the Defense Department. Regarding private sector involvement in space activities generally, the Presidential Directive states:

> The United States Government will provide a climate conducive to expanded private sector investment and involvement in civil space activities, with due regard to public safety and national security. Private sector space activities will be authorized and supervised or regulated by the government to the extent required by treaty and national security.[4]

The Reagan Administration's policies are an extension of and are consistent with the policies of previous Administrations.[5]

On February 24, 1984, President Reagan signed Executive Order 12465 designating the Department of Transportation ("DOT") as the lead regulatory agency to encourage, facilitate and coordinate the development of commercial expendable launch vehicle ("ELV") operations by private United States enterprises.[6] The responsibilities assigned by the Executive Order are to:

> (a) act as a focal point within the Federal government for private sector space launch contacts related to commercial ELV operations;
> (b) promote and encourage commercial ELV operations in the same manner that other private United States commercial enterprises are promoted by United States agencies;

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[3] *Id.*

[4] *Id.*

[5] *See,* Presidential Directive/NSC-42, October 10, 1978 (Subject: Civil and Further National Space Policy); Presidential Directive/NSC-54, Nov. 20, 1979 (Subject: Civil Operational Remote Sensing).

[6] *See supra* note 2.

> (c) provide leadership in the establishment, within affected departments and agencies, of procedures that expedite the processing of private sector requests to obtain licenses necessary for commercial ELV launches and the establishment and operation of commercial launch ranges;
> (d) consult with other affected agencies to promote consistent application of ELV licensing requirements for the private sector and assure fair and equitable treatment for all private sector applicants;
> (e) serve as a single point of contact for collection and dissemination of documentation related to commercial ELV licensing applications;
> (f) make recommendations to affected agencies and, as appropriate, to the President, concerning administrative measures to streamline Federal Government procedures for licensing of commercial ELV activities;
> (g) identify Federal statutes, treaties, regulations and policies which may have an adverse impact on ELV commercialization efforts and recommend appropriate changes to affected agencies and, as appropriate, to the President; and
> (h) conduct appropriate planning regarding long-term effects of Federal activities related to ELV commercialization.[7]

An interagency group, chaired by the Secretary of Transportation and composed of representatives from State, Commerce, the FCC and NASA was established to advise and assist DOT in performing its responsibilities under the Executive Order. Other agencies were ordered to assist the Secretary of Transportation and to:

> (a) provide the Secretary of Transportation with information concerning agency regulatory actions which may affect development of commercial ELV operations;
> (b) review and revise their regulations and procedures to eliminate unnecessary regulatory obstacles to the development of commercial ELV operations and to ensure that those regulations and procedures found essential are administered as efficiently as possible; and
> (c) establish timetables for the expeditious handling of and response to applications for licenses and approvals for commercial ELV activities.[8]

The Executive Order specifically does not diminish or abrogate any statutory or operational authority by any other Federal agency.

III. Department of Transportation

A. Office of Commercial Space Transportation

At a meeting of the Cabinet Council for Commerce and Trade on November 16, 1983 President Reagan announced his intention to designate DOT as the agency with principal responsibility for fostering the commercial use of space. The Office of Commercial

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[7] *Id.*

[8] *Id.* at 7212.

Space Transportation within the Office of the Secretary of Transportation was officially established on February 24, 1984, and operated unofficially between November 16, 1983 and February 24, 1984.

Starstruck, Inc. ("Starstruck"), formerly ARC Technologies, Inc., obtained the assistance of the Secretary of Transportation with the United States Materials Transportation Bureau to ease the clearance process and allow Starstruck, Inc.'s vehicle propellants to be handled in the Port of Los Angeles.[9] When the initial Dolphin test rocket launch was scrubbed February 6, 1984, the Office of Commercial Space Transportation and the United States Navy have assisted Starstruck for its rescheduled March 1984 Dolphin test rocket launch.

The Office of Commercial Space Transportation has been meeting with representatives of interested commercial entities and government agencies to assess the wide range of regulatory and market issues associated with private ELV operations. Commercial enterprises using non-traditional government launch sites are expected to have the most significant contacts with the Office of Commercial Space Transportation to coordinate launch clearances.

B. Federal Aviation Administration (FAA).

The basic statutory authority of the FAA is contained in the Federal Aviation Act of 1958.[10] The FAA's primary responsibility is to promote and control aircraft operations. Any commercial sub-orbital or orbital rocket must be launched through controlled airspace used by aircraft. While there is only an infintestimally small chance that any particular rocket launch will damage an aircraft flying near the launch site, the FAA can (and did in the case of the September 9, 1982, Conestoga I rocket launch)[11] minimize the chances of such an occurrence by temporarily restricting from airplane use the airspace above the launch site and in the flight path of the rocket.

Part 101, Subpart C, of the Federal Aviation Regulations (FARs) contains the only regulations clearly applicable to rocket launches. Prior to filing a petition for exemption from those regulations, informal conversations with responsible FAA officials and attorneys suggested that the FAA regarded Part 101, Subpart C, to be the only FAR's governing the proposed launch of the Conestoga I, an unmanned rocket.[12]

Part 101, Subpart C, was adopted June 29, 1963 for the purpose of ensuring that small rockets launched by hobbyists and scientists would not interfere with aircraft

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[9]*See Commercial Launch Effort Tied to Spacecraft Market,* AVIATION WEEK AND SPACE TECH., March 12, 1984, at 120.

[10]49 U.S.C. §§ 1341-1359 (1976 and Supp. V 1981). Pursuant to that authority, the FAA has issued Federal Aviation Regulations ("FAR's"), which are codified in Title 14 of the Code of Federal Regulations, Parts 1 through 199. 14 C.F.R. §§ 1-199 (1983).

[11]The Conestoga I was originally a minuteman I rocket bought by Space Services, Inc. from the government and launched from Matagorda Island off the coast of Texas. *U.S. News and World Report* September 20, 1982, at 12.

[12]*Cf.* 27 Fed. Reg. 5402-5404 (1963). To the extent that any other FAR's could be deemed to restrict, limit or prohibit the proposed launch, *Space Services Incorporated of America* requested an exemption from such regulations, as well as Part 101, Subpart C. When the FAA granted an exemption for the launch, no mention was made of other regulations, so presumably the FAA determined that Part 101, Subpart C, contains the only FAR's governing unmanned rocket launches.

operations. The regulations were not designed to regulate commercial sub-orbital and orbital rocket launches.[13]

The FAR's substantive limitations on rocket launches are set forth in 14 C.F.R. Part 101. That regulation reads as follows:

No person may operate an unmanned rocket—

(a) In a manner that creates a collision hazard with other aircraft;
(b) In controlled airspace;
(c) Within five miles of the boundary of any airport;
(d) At any altitude where clouds or obscuring phenomena of more than five-tenths coverage prevails;
(e) At any altitude where the horizontal visibility is less than five miles;
(f) Into any cloud;
(g) Within 1,500 feet of any person or property that is not associated with the operations; or
(h) Between sunset and sunrise.[14]

A sub-orbital or orbital rocket launch from the Continental United States invariably involves an intrusion into controlled airspace and is therefore prohibited without a waiver or exemption from the FAA. A commercial operator's proposed launch may also be subject to the other limitations contained in Section 101.23.

Rocket launches from government ranges such as the Kennedy Space Center and the Vandenberg Air Force Base ("AFB") are not subject to these FAR's because the airspace above government ranges have been declared restricted airspace.[15] Activities within that restricted airspace are subject to the supervision and control of the government agency, *e.g.,* NASA, which operates the rocket range.

For any permanent, private launch site the FAA will probably require the processing of a request for restricted airspace. There are procedural rules for processing such a request by a private company.[16] FAR's also govern the control and use of restricted airspace.[17] The FAA will presumably have wide discretion to determine the conditions and limitations to be imposed on the first operation of a private, permanent launch site, because the FAR's provide no guidance as to what limitations and conditions are associated with a designation of restricted airspace.

For the anticipated Percheron launch in August 1981, Space Services requested and obtained a waiver of FAA regulations. Because the anticipated launch was the first such activity reviewed by the FAA, the FAA limited permission to a launch within the territorial waters of the United States.

For the Conestoga I rocket launch in September 1982, Space Services requested on March 16, 1982, and on September 1, 1983 it received an exemption from the FAR's

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[13]*See id.* at 5403.

[14]14 C.F.R. § 101.23 (1983). *See also* 14 C.F.R. § 101.25 (1983) for the requirements associated with notification of a rocket launch to the nearest FAA Air Traffic Control facility.

[15]*See* 14 C.F.R. §§ 73.01-.19, 73.81-.85 (1983).

[16]14 C.F.R. § 11.61-.75 (1983).

[17]*See supra* note 10.

permitting a sub-orbital launch to an altitude of approximately 169 nautical miles high and 279 nautical miles downrange with "splash-down" in the international waters of the Gulf of Mexico. The exemption was granted after interagency consultation and coordination and after public comments were solicited in two *Federal Register* notices.[18] The FAA also issued an order designating temporary restricted airspace and appropriate notices to airmen ("NOTAM's"), concerning launch. The strengths of the FAA approval process included:

(a) Regular communication between Space Services and the FAA through designated liaison personnel;
(b) Attention to policy and technical issues by senior FAA personnel;
(c) Familiarity with technical issues;
(d) Willingness by FAA to accommodate "last minute" changes by Space Services without delaying launch;
(e) Coordination with Coast Guard responsibilities, U.S. Navy air training exercises and United States Air Force responsibilities; and
(f) Notification of launch to government agencies, the public and airspace users.

Overall, FAA personnel displayed an extraordinarily professional and supportive role in both authorizing and supervising the launch.

Starstruck did not apply to the FAA for an exemption from the FAR's, because its proposed Dolphin rocket launch will be outside the territorial waters of the United States. Nevertheless, the FAA did decide which of the company's preferred launch windows would be used for the Dolphin test. FAA involvement and review has been coordinated through the State Department's export licensing procedures and the Office of Commercial Space Transportation coordination procedures.

IV. National Aeronautics and Space Administration

NASA has no direct authority to regulate private space activities, although the broad statutory authority conferred by the National Aeronautics and Space Act[19] might arguably be construed to regulate private space ventures. NASA's present policy appears to be that NASA has no interest, responsibility or authority to regulate private commercial space activities.

While the author applauds NASA's policy on this issue as both a correct interpretation of law and good public policy, NASA will inevitably exercise an important role in shaping government regulatory policy concerning private space ventures. First, NASA has considerably more technical expertise concerning the operation of launch vehicles and spacecraft than any other government agency in the United States with the possible exception of the Defense Department. As a consequence, on factual and technical questions which are often important components in policy decisions, NASA will be consulted and will play a role in making decisions on these questions. Second, NASA has control of much of the equipment, technology and facilities that will be an important part of the commercialization of the American space program. The process of making that equipment, technology and facilities available for use for private space ventures means that NASA

[18] 47 Fed. Reg. 16243-44, 47 Fed. Reg. 32229 (1982).

[19] 42 U.S.C. §§ 2451-2477, 2481-2484 (1976 and Supp. V 1981).

will dictate terms and conditions in addition to price. In effect, those terms and conditions for the sale and use of NASA derived technology will inevitably reflect the Federal Government's regulatory policies. Several examples will serve to illustrate these two points.

Two private rocket companies in the United States, Space Services and Starstruck have applied for various licenses to permit private rocket launches. While NASA has not been directly involved in any of the licensing procedures which either of the two companies have pursued, NASA has reviewed both companies' plans and in addition made substantial recommendations regarding the technical aspects of each company's proposed program. Because the actual licensing agencies did not feel especially technically competent, they have by their own admission relied heavily on NASA's evaluations and recommendations.[20]

While NASA did not exercise any regulatory authority over the Conestoga I rocket launch by Space Services, NASA did agree to provide a Minuteman I M56A-1 rocket motor which powered the Conestoga I rocket. As part of the process of deciding whether and how to permit the use of the M56A-1 rocket motor, NASA carefully reviewed the technical and safety aspects of the proposed Conestoga I launch. In addition, the agreement with NASA for use of the rocket motors, at its insistence, included provisions on insurance and indemnification of the United States, its agencies, employees and contractors.

NASA operates and controls the Space Shuttle, which has the most advanced space launch capability in the world today. NASA is attempting aggressively to market and exploit this vehicle to the commercial market. Because of NASA's ability to set the rules of the game for such a substantial portion of the commercial spacecraft launch business through its operation and control of the Space Shuttle, NASA's policies will inevitably affect other aspects of the launch business.

In addition to NASA's control and operation of the Space Shuttle, NASA is presently the only source of expendable launch vehicles in the United States. NASA is presently turning over the operational control of expendable launch vehicles to commercial entities. The process of making NASA facilities, equipment and personnel available for use by private commercial space ventures necessarily means that NASA sets the terms and conditions associated with their use. In response to NASA's requests for proposals to commercialize expendable launch vehicles, three proposals were received (1) bid by General Dynamics Convair Division to operate the Atlas-Centaur, (2) bid by Transpace Carriers, Inc. to operate the Delta, and (3) request by Cyprus Corp. to use Delta facilities, tools and equipment to develop a Space Shuttle upper stage from the Delta's second stage rocket motor. NASA has accepted the proposals of General Dynamics Convair Division and Transpace Carriers, Inc. and negotiations to establish the details of the takeovers are underway. NASA has not yet accepted the proposal of Cyprus Corp., although informal comments by NASA officials indicate that Cyprus Corp.'s request will be accommodated and coordinated with the proposal of Transpace Carriers, Inc. In the process of commercializing expendable launch vehicles NASA is making important policy decisions concerning the provision and cost of support services, access to government launch sites, liability insurance provisions, payload inspection and public safety. In short, although NASA will technically be in the role of a lessor of facilities rather than as a regulator of private space activities, in function NASA as owner and operator of the Kennedy Space Center will actually regulate many important private space activities. Of course, this observation applies to the use of government launch facilities which are controlled by the United States Air Force ("USAF") at Patrick AFB, Edwards AFB and Vandenberg AFB.

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[20] *See, e.g.*, discussion of State's export licensing procedures, *infra* pt. V.

V. State Department

The United States is a signatory to several treaties which establish principles regarding the use and exploration of outer space. State is the agency generally responsible for negotiating and executing such agreements. In addition, State is generally responsible for dealing with foreign governments concerning administration of and compliance with the terms of international treaties.

The most important general international obligation associated with private commercial space activities is contained in what is commonly known as the Outer Space Treaty.[21] Article VI of that treaty reads as follows:

> *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 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 State Parties to the Treaty participating in such organization. (Emphasis added.)[22]

The Outer Space Treaty also includes provisions which make the Federal Government liable for damage to foreign countries, citizens and corporations resulting from launch activities from United States territory by private companies. Article VII reads as follows:

> Each State Party to the Treaty that launches or procures the launching of an object into outer space, including the moon and other celestial bodies, and each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the Earth, in air space or in outer space, including the moon and other celestial bodies.[23]

More specific provisions which impose similar liability on governments for damages caused by space objects launched by non-governmental entities are contained in the "Convention on International Liability for Damage Caused by Space Objects".[24]

General international treaty obligations of the United States which apply to activities in outer space also exist with respect to peaceful uses, nuclear weapons, weapons of mass

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[21]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 U.S.T. 2410; T.I.A.S. No. 6347, 610 U.N.T.S. 205 [hereinafter cited as Outer Space Treaty].

[22]*Id.*, Art. VI.

[23]*Id.*, Art. VII.

[24]Convention on International Liability for Damage Caused by Space Objects, Mar. 29, 1972, 24 U.S.T. 2389, T.I.A.S. No. 7762.

destruction, and environmental modification techniques having widespread, long-lasting or severe effects.[25]

The Federal Government has also agreed to register all space objects launched from United States territory on an international registry.[26] State is responsible for complying with this registration obligation.

These treaties and international agreements impose obligations on the Federal Government, but not directly on United States individuals and corporations. If United States individuals and corporations cause damage to foreign interests, State would be responsible for responding at a governmental level to foreign claims. As a consequence, in connection with the Conestoga I launch, State sought to exercise its responsibilities under the treaties by requiring Space Services to obtain an export license. Space Services sought and received approval through State's export licensing procedures for the Conestoga I rocket launch. Starstruck has received approval through State's export licensing procedures for a proposed Dolphin rocket launch from a vessel outside the terretorial waters of the United States. While there are substantial questions as to the legal basis for imposing an export licensing requirement on private rocket launches from a United States site, private space entrepreneurs may continue to elect to comply with State's assertion of jurisdiction to avoid a costly, lengthy challenge to that asserted authority.

State's statutory authority for control and licensing of arms exports is contained in the Arms Export Control Act.[27] Pursuant to statute, State has issued the United States munitions list which contains a list of designated arms, ammunition and implements of war that includes rockets and launch vehicles.[28] Category IV of the U.S. munitions list reads as follows:

> Category IV—Launch Vehicles, Guided Missiles, Ballistic Missiles, Rockets, Torpedoes, Bombs and Mines
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> (a) *Rockets* (except meteorological sounding rockets), bombs, grenades, torpedoes, depth charges, land and naval mines, and demolition blocks and blasting caps.
>
> (b) *Launch vehicles,* guided missiles, and ballistic missiles, tactical and strategic.
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> (c) Apparatus, devices, and materials for the handling, control, activation, detection, protection, discharge, or detonation of the articles in paragraphs (a) and (b) of this category.
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> (g) All specifically designed components, parts, accessories, attachments, and associated equipment for the articles in this category. [N. omitted, emphasis added.][29]

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[25] *See,* Outer Space Treaty, *supra* note 16, arts III, IV; Charter of the United Nations and Statute of the International Court of Justice, June 26, 1945, 59 Stat. 1031, T.S. No. 993, 1 U.N.T.S. xvi; Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, May 18, 1977, 31 U.S.T. 333, T.I.A.S. No. 9614.

[26] Convention on the Registration of Objects Launched into Outer Space, Jan. 14, 1975, 28 U.S.T. 695, T.I.A.S. No. 8480.

[27] 22 U.S.C. §§ 2751-2796 (1976 and Supp. V 1981).

[28] 22 C.F.R. § 121.01 (1982).

[29] 22 C.F.R. § 121.01, Category IV (1982). *See also id.* Categories V(a), VIII, XI and XII.

On April 16, 1982, Space Services requested any authorization necessary from State as a precondition to the Conestoga I rocket launch. On September 7, 1982, State issued a letter approving the launch under the Arms Export Control Act subject to the following conditions and limitations:

> 1. This authorization is confined to the proposed prototype launch only. Subsequent launches of this type will require a separate review and approval.
> 2. The authorization is based on the understanding that [Space Services] has agreed to comply with certain safety requirements imposed by NASA and the FAA on the Conestoga launch.
> 3. This authorization is subject to the understanding that [Space Services] has obtained insurance in the amount of $100 million for any damages that may arise in connection with the launch.
> 4. [Space Services] agrees to indemnify the United States Government for any damages and expenses that might arise in connection with the Conestoga launching, including any payments for which the United States may be responsible under any treaty.[30]

Because of the absence of NASA and FAA imposed safety requirements due to the proposed launch from international waters, approval in January 1984 by State of Starstruck's request for its proposed Dolphin rocket launch included details of range safety requirements.

VI. Federal Communications Commission

The only large profitable and thriving space business in existence now is satellite communications. The FCC is responsible for establishing appropriate frequencies for satellite communications in its table of frequency allocations and issues individual licenses for each satellite in operation. Because communication satellites have been launched on NASA-owned and operated vehicles, FCC review and approval has been the only significant regulatory constraint on the burgeoning space communications business. For private space activities outside the field of satellite communications, entrepreneurs must obtain an FCC license as only one of several government approvals.

In connection with private rocket launches from a private site, communications frequencies are necessary for several support functions, *i.e.,* monitoring telemetry, radar tracking and an abort/destruct capability. The operation of any satellite launched by a private space venture requires FCC approval of necessary frequencies and licensing of the radio operator to permit command and control of the satellites and data transmission. There are no frequencies that have been designated by the FCC for uses associated with private commercial rocket launches. FCC regulations do provide for issuance of an experimental radio license (for other than broadcast services) for communications essential to research programs. For the Conestoga I rocket launch, Space Services requested and received an experimental radio license granting the right to use freuqencies on a non-

[30]Letter from William B. Robinson, Director, Office of Munitions Control, Department of State, to James R. Myers (Sept. 7, 1982) (granting requested approval of Conestoga I launch).

exclusive basis for essential communications. Starstruck applied for and was issued an experimental radio license for its proposed Dolphin rocket launch from international waters.

Because private space activities outside the field of satellite communications are subject to extensive interagency government review and approval, FCC regulation should be limited to a review of communications issues, *e.g.,* interference, allocation of scarce spectrum, rather than include issues best left to other agencies. This seems to be the present view of the FCC given its processing for the Conestoga I rocket launch in 1982, although for the proposed Percheron rocket launch in 1981 the FCC questioned whether a destruct capability was in the public interest.

In order for a private space venture to establish a permanent, private launch site and commence launches from that site on a regular, frequent basis, it will be necessary for the communications facilities to be permanently licensed by the FCC.

VII. Department of Defense

Defense, especially through the United States Air Force ("USAF"), exercises important authority over private space ventures in several respects. First, Defense through interagency review processes comments on national security (and sometimes public safety) aspects of proposed private space activities. A negative evaluation by Defense will profoundly reduce, if not eliminate, the chances of favorable action by the licensing agency, *e.g.,* State, FAA.

Second, Defense, especially the USAF, controls and operates important government rocket ranges at White Sands, Patrick AFB, Vandenberg AFB and Edwards AFB. For example, the Titan launch facilities are controlled by the USAF. The Atlas-Centaur launch pads are operated by NASA on USAF property. As a consequence of the desire to use government facilities and equipment, private space ventures will be subject to Defense limitations.[31]

Third, the USAF, through North American Air Defense ("NORAD")/Space Command, is responsible for space traffic monitoring.[32] For example, for the Conestoga I rocket launch NORAD performed its computation of miss between orbits ("COMBO") to avoid a collision with orbiting satellites. In addition, NORAD has the responsibility of advising the Soviets in the event that a rocket strays off course toward areas of Soviet interest.

VIII. Congressional Actions

The Congress influences the emerging regulation of private space entrepreneurs in two important ways. First, the Congress, through its committees or individual Congressmen, sometimes submits comments prior to agency action. For example, before NASA agreed to provide a rocket motor to power the Conestoga I rocket launch NASA's oversight committees were consulted. If comments are not solicited from Congress, occasionally a bill will be passed to require prior Congressional approval of agency action.[33]

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[31]See discussion of NASA's commercialization of expendable launch vehicles, *supra* pt. IV.

[32]*See* Covault, *Center Set for Soviet Space Monitoring,* AVIATION WEEK AND SPACE TECH., March 28, 1983, at 56.

[33]*See, e.g.,* 129 Cong. Rec. H1693 (daily ed. March 24, 1983); H.R. 2065, 98th Cong., 1st Sess. 1983. *See also* Act of Oct. 15, 1982, Pub. L. No. 97-324, 96 Stat. 1597, 1601 (1982).

Second, the Congress acting as a body creates the statutes which are and will be used to regulate private space activities. Several bills have been introduced which promote and regulate various private space launch activities. In general, those bills are designed to streamline the approval process with the hope of reducing time, cost and uncertainty to the applicant. Fortunately, both Congress and the agencies have been willing to approve private space launch ventures using the procedures discussed above without passage and implementation of legislation specifically directed to private space launch ventures. Because there are not yet a large number of private space launch activities the agencies can handle approvals on a case-by-case basis. Legislation will only be needed once private space launch activities are a regular frequent occurrence.

Senator Hollings (D-S.C.), with other sponsors, has introduced a bill[34] to authorize and regulate the launch of space objects by private entities which designates the FAA as the "lead regulatory agency." The bill was originally introduced in the last session by former Senator Cannon (D-Nev.). Representative Akaka (D-Haw.), with other sponsors, has reintroduced a similar bill[35] from the last session which would designate Commerce as the "lead regulatory agency" for private rocket launch activities. The author has been informally advised that a bill may soon be introduced which would designate the Department of Transportation as the "lead regulatory agency" for commercial operation of expendable launch vehicles.

IX. International Organizations

The United States is a member of a number of international agencies and institutions which establish and implement international policy associated with space activities. For example, the United States is a member of the International Telecommunications Satellite Organization ("INTELSAT"), the International Maritime Satellite Organization ("INMARSAT"), the International Telecommunications Union ("ITU"), the World Administrative Radio Conference ("WARC"), and the United Nations Committee on the Peaceful Uses of Outer Space ("COPUOS"). Each of these institutions or agencies develops general international policies on space activities which are not necessarily binding on the Federal Government. Nevertheless, the United States has consistently complied with the policies enunciated in those organizations and as a consequence the decisions and actions of those organizations could have a significant impact on private space activities.

[34]S. 560, 98th Cong., 1st Sess. (1983).

[35]H.R. 1011, 98th Cong., 1st Sess. (1983).