Statement of

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Mr. Chairman and Members of the Subcommittee:

Thank you for the opportunity to appear before the Subcommittee today concerning the issue of insurance for commercial space endeavors and for your continuing interest in matters affecting the commercial space launch industry.

My remarks this morning are directed, at the Subcommittee's request, to the impact that constraints on space launch insurance underwriting capacity may have on the U.S. private commercial launch industry and its customers. As members of the Subcommittee are well aware, there is considerable concern that the communications satellite industry and possibly other commercial space ventures may soon be facing sharply increased premiums for launch insurance and that some may be unable to obtain such insurance at any price. The projected shortfall in capacity is a direct result of the recent series of losses due to launch or satellite failure. My testimony addresses the nature and scope of the problem as well as some of its implications for the continued growth and development of commercial space industries.

The Office of Commercial Space Transportation has a direct interest in space insurance for two reasons. First, the Commercial Space Launch Act directs the Secretary of Transportation, in issuing licenses for the launch of commercial launch vehicles or the operation of private launch sites, to

establish minimum levels of liability insurance coverage that operators must obtain. Coverage must be sufficient to ensure that "third parties" (persons and property not involved in a launch or launch site operation) can be compensated for any damages they might sustain as a result of launch activities. Liability insurance coverage has added significance in that the United States itself could be held liable under international law for damage caused to foreign nationals by privately launched U.S. spacecraft. On May 7th, the Office of Commercial Space Transportation initiated a rulemaking proceeding to establish the procedures and criteria it will utilize in making these determinations. Thus, we are concerned that capacity remain available, at reasonable rates, to enable licensees to meet the third party liability insurance requirements that are established for launch operations.

Second, the Act directs the Secretary to "encourage, facilitate, and promote" commercial space launches by the private sector. An essential element of any commercial launch is business insurance coverage (for loss as well as for liability) to protect investor capital. For this reason, the Office is concerned with the extent to which other types of insurance coverage required for commercial space ventures -- pre-launch, launch, and on-orbit "satellite life" insurance -- continue to be available to launch customers.

Anyone involved in space commercialization or interested in its future cannot help but be concerned about the severe losses the space insurance industry has sustained as a result of the launch coverage it has written for communications satellites. Depending upon the final claims settlements in connection with the losses of the GTE Spacenet 3 and the Eutelsat-ECS 3 satellites due to the failed launch of an Ariane 3 last month, the insurance industry will have paid in excess of $850 million in claims since 1977. Of this amount, approximately $600 million will have been paid as a result of losses occurring within the last twenty

months. Even the steep increases in rates that have occurred as a result of these failures (from about 7.2% in 1977 to as high as 20% or even higher in the current market) may not generate premium revenues sufficient to enable underwriters both to recoup payouts for past claims and to continue underwriting future space ventures of similar magnitude.

Insurance is a factor critical to the success of commercial ventures. It is especially important to space ventures, which expose substantial investment capital to risk of loss in a single event. Representatives of the financial community have stressed that, were insurance not available, the private investor capital needed to support space commercialization efforts would evaporate. Thus, the issues of launch insurance capacity and rates will continue to be matters of keen interest until the extent of the problem is fully evaluated and appropriate initiatives for resolution have been thoroughly explored and pursued.

## Nature of Current Space Insurance Capacity Problems

When considering the problems facing commercial space ventures in the insurance market, it is important to bear in mind that underwriting losses -- and concomitant capacity reductions coupled with sharp premium increases -- have by no means been confined solely to space insurance lines. The entire property/casualty insurance industry is presently experiencing the worst period in its history. According to a recent authoritative study by the Insurance Services Office, Inc., and the National Association of Independent Insurers, net losses totaled $1 billion in 1980 and almost $18 billion in 1984. These losses were caused by an unbroken string of underwriting losses since 1979. In 1984, underwriting losses reached more than $21 billion; the six year total came to $55 billion. And the commercial property/casualty lines have fared worst of all.

While insurance is primarily a contractual issue between an insurance provider and a purchaser, and regulation of insurance is primarily a function performed by state governments, the Department of Transportation has responsibility in a number of insurance areas. Both the Federal Aviation Administration and the Maritime Administration manage war risk insurance programs. The Federal Highway Administration administers the statutory minimum levels of financial responsibility required by the Motor Carrier Act of 1980 and the Bus Regulatory Reform Act of 1982. The Coast Guard enforces the minimum insurance requirements for vessel operators under the Federal Water Pollution Control Act.

Because of the Department's regulatory and public safety responsibilities, we follow closely developments in the insurance industry and gauge continually their effect on the performance of industries within our jurisdiction. The recent insurance losses industry-wide have placed additional cost pressures on a number of transportation modes.

Insurance is presently a critical issue in commercial aviation, for example, and has been a subject of intense concern even prior to the series of accidents we have witnessed in recent months. By the first quarter of this year, passenger liability insurance rates for the major and national carriers had risen an average of more than 41% above first quarter 1984 rates, and rates for "hull insurance," or aircraft physical damage coverage, had risen more than 28%. I want to emphasize that these increases do not reflect the recent losses, whose effects on rates are not yet known. It is widely expected, however, that airlines will face significantly higher deductibles and may be unable to retain the levels of coverage they now have.

Urban mass transit is another transportation mode encountering significant insurance difficulties. This past July, the Southern California Rapid Transit District came within nine hours of idling its 2,500 buses for lack of insurance coverage. The annual premium rose from $67,000 to $3.2 million. Analogous

situations confront other transit companies across the country, with premiums expected to increase 100-1000 percent in upcoming renewals. The Urban Mass Transportation Administration is working closely with local transit authorities and the insurance community to reach cooperative, non-regulatory solutions to the current capacity shortage. Similar problems face the trucking industry, where both interstate and intrastate trucking have been hit especially hard by dramatic liability insurance rate increases.

We are equally concerned about insurance for commercial space ventures. In discussing the "insurance problem" facing commercial space industries, however, there is need for careful definition of our terms of reference. The insurance losses that have occurred to date have resulted from failure of expendable launch vehicles, from failure of upper stages designed to place payloads in orbit, and from on-orbit satellite malfunctions. But they have also resulted, according to many insurers, from faulty assessments of the risks involved in insuring the launch and operation of commercial satellites. These underwriting misjudgments produced unrealistically low rates from the outset and proved to be a significant contributor to the current problem. The losses have caused several insurers to cease providing coverage for space launches entirely and others to reduce considerably the amounts they will write or the risks they will insure.

It is important to understand the precise nature of the risks that are being assumed by space insurance underwriters. Many in the insurance industry feel that launch insurance, as presently written, essentially constitutes a form of manufacturer's warranty. In effect, it guarantees that the satellite will perform its intended function or its insurer will pay compensation to its owner. Such compensation, depending upon the amount of coverage obtained, can equal as much as the full value of the payload, the cost of its launch, and the revenues the operator could have expected to earn had the satellite functioned as intended.

Providing insurance coverage for any single space launch is a multinational undertaking. In addition to insurance companies, pools, and syndicates in the United States and the United Kingdom, underwriters in several western European nations (in particular, France, Germany, Italy and Sweden) write substantial amounts of coverage for both NASA and Arianespace launches. Moreover, many underwriters in these countries participate in space insurance lines (as in other insurance lines) both as direct providers and as "reinsurers." Reinsurance is a key component of insurance underwriting capacity. It enables underwriters, through a series of commercial agreements with other underwriters, to dilute the risks they have assumed by spreading them across broad segments of the industry.

Thus, the intricacies inherent in insurance underwriting make it extremely difficult to determine, in the abstract, precisely how much capacity exists at any given moment in any particular insurance line. Projections are especially difficult to make in lines like those in space insurance, where there is no broad actuarial base. Insurance capacity can only be known with certainty in the context of a particular launch, when an insurance broker submits, on behalf of a payload owner/operator, a request for rate quotations from "lead" underwriters and when other underwriters subsequently commit to taking a portion of the line at the rates and on the terms being offered to that customer. It is also very difficult to know whether coverage for a particular satellite, once written, has exhausted all of the capacity currently available for the line of insurance involved.

## Effects On The U.S. Private Commercial Launch Industry

While launch vehicles can fail, insurers have long had experience with many of the vehicles or vehicle types currently utilized to place payloads in orbit. Existing U.S. ELVs, Delta and Atlas/Centaur for example, have had reliability ratings in excess of 95% for the past ten years. Failure of a certain

percentage of launch vehicles is the kind of "catastrophic" loss insurers can anticipate in quoting rates and are not considered extraordinary. Satellite failures present underwriters with a number of uncertainties, exacerbated by the fact that the precise reason for a satellite loss usually cannot be determined unless the satellite can be retrieved. Such concerns about satellite performance are at the root of demands we are currently hearing that satellite manufacturers must either self insure or bear a significantly higher proportion of risk.

Launch insurance underwriting capacity appears to be constrained primarily for launches involving multiple payloads. A number of brokers and underwriters in the United States and in London estimate that, under present circumstances, $100 million is the maximum amount of coverage available worldwide for a single launch, regardless of the number of commercial payloads on that launch. Recent losses have been in the range of $85-100 million for a single satellite. At that rate, the current estimated capacity of $100 million would prove insufficient to cover the launch and the full value of each commercial satellite scheduled for a particular multi-payload launch. On the other hand, an owner whose satellite is to be launched on a "dedicated" (single payload) launch vehicle may not encounter the same obstacle.

As members of the Subcommittee are aware, however, several underwriters are now expressing considerable reluctance to provide coverage for the ascent to orbit and initial operations phases of satellite launches. If this approach should become standard industry practice, it would impact dedicated and multiple launch programs equally. Provided coverage for these launch phases remains available, satellite owners utilizing dedicated launches on vehicles with proven reliability should still be able to obtain launch insurance coverage even if maximum capacity remains reduced to the levels currently anticipated.

In the case of dedicated launches utilizing unproven vehicles, we believe that while rates for insurance coverage may

increase, the total amount of coverage needed is likely to be lower. Newer commercial launch systems are projected to be less expensive and launch coverage needed for them does not appear to rise to the levels impacted by current capacity constraints.

Concern has also been expressed that third party liability coverage either may no longer be available or may be available only at substantially higher rates. At present, liability insurance premiums constitute a very small percentage of total launch costs and do not appear to present a barrier to commercial launch ventures. The capacity of underwriters to provide such insurance may depend to some extent on the launch vehicle used and on the number of payloads to be launched from that vehicle.

Third party liability is an insurance line quite distinct from other forms of space insurance. Indeed, a number of underwriters will provide third party liability coverage but will not write launch insurance, and vice versa. For this reason, and also because the liability insurance market overall is a large one with internal dynamics of its own, losses in one line of space insurance (i.e., launch insurance) do not seem to have a direct and immediate effect on the availability of third party coverage.

Up to the present time, insurance underwriters have been able to provide $500 million in liability coverage for each launch of a single payload. Multiple payloads launched from a single vehicle, such as the Shuttle, however, have been covered up to $750 million for all payloads launched on a particular mission. NASA assists payload owners in obtaining coverage and has authority under Section 308 of the National Aeronautics and Space Act to provide coverage under certain conditions if a sufficient amount cannot be obtained commercially.

We should bear in mind that, in the twenty years since insurers first began to write coverage for commercial satellites, no claim has ever been made under any space liability insurance policy. Yet, rates for space third party liability insurance,

while still comparatively low, have begun to rise along with all insurance rates in recent months. We share the view of most industry observers that these increases are primarily the result of the substantial losses that have occurred in the property/ casualty insurance industry generally. While one cannot discount at least the psychological effects of losses in one line of space insurance upon other insurance coverage written for the same industry, we believe that any capacity constraints which may exist or develop in the third party liability area are more the result of these insurance industry-wide liability losses than of the recent losses in space launch insurance lines.

## Options

Concerns about the continued availability of commercial insurance for space ventures have prompted a number of proposals concerning steps that the space and insurance industries, and in some instances the Federal Government itself, should take to alleviate the problems created by the current rate hikes and capacity constraints. Some of these ideas propose increased risk sharing or financial pooling arrangements among firms actively involved in space activities, including satellite owners and manufacturers as well as operators of launch vehicles. Other proposals suggest private and public efforts to promote increased exchanges of information among satellite owners, manufacturers and insurers concerning satellite design, manufacture and performance.

Some proposals, especially those contemplating government intervention to subsidize insurance premiums or actually to provide insurance, rest upon a conclusion that insurance markets have failed and that somewhat drastic action may be warranted. These proposals involve a variety of approaches. Some raise the possibility that the Government might provide insurance only for multiple payload losses which have extremely high values and which might thereby constrain overall launch insurance capacity. Others would target government subsidization of rates on the more risky

phases of launches and encourage private insurers to underwrite other launch phases. It has also been suggested that the Government target insurance subsidies on certain space industries or firms, such as new space technologies or smaller satellite companies that may have difficulty obtaining insurance at affordable rates.

In my view, the present situation does not warrant any form of intervention by the United States Government in private space insurance markets. While insurance for space ventures (including projects to provide both the transportation to, as well as the means to utilize, the space environment) remains crucial to their commercial success, I believe that any such government action would be both premature and unwise. Our examination of the space launch and liability insurance industries, including numerous discussions with brokers and underwriters in both the United States and in Europe (including some no longer writing space insurance lines) has served to reinforce this belief.

I also share the apprehension of private ELV companies that U.S. Government involvement in space insurance could work to their competitive disadvantage. As mentioned earlier, launch insurance does not seem to be a problem for dedicated launches for which ELVs are especially well-suited. Were the Government to intervene in order to alleviate insurance capacity problems affecting multiple payload launches -- effectively to the detriment of dedicated launches -- such a policy would further discourage space launch commercialization efforts. The objective in all cases would have to be one of ensuring that any measures the Federal Government were to implement affect all U.S. launch systems equally.

To state that government intervention is not warranted is not to suggest that all is well in the insurance area. At this point, however, I believe strongly that the better policy would be to allow the insurance markets sufficient time to remedy a situation which the markets have themselves produced. While it is true that

the insurance industry has incurred losses as a result of faulty assumptions, inflated revenue expectations or other reasons, the fact remains that the industry itself may well possess the means to redress current problems. Solutions may indeed lie in strategies that contemplate increased risk sharing among parties most directly involved in satellite launches with the option of enabling premiums and capacity to return to more comfortable levels. In any event, we need to allow time for the necessary adjustments to occur.

In summary, Mr. Chairman, I think the appropriate role for the Federal Government at this stage should be to continue to monitor carefully the present situation in the insurance and satellite industries rather than to try to direct market forces in particular ways. Consistent with that philosophy, the Department of Transportation recently established an internal Insurance Task Force to coordinate information from the transportation sector and to assess and monitor the impact of insurance problems on the nation's transportation industries. In addition, the Office of Commercial Space Transportation is heading a sub-group of the Commercial Space Working Group to provide a similar focus for the space industry in particular.

We look forward to working closely with the Subcommittee and will keep you apprised of our progress with these and other matters influencing the success of commercial space ventures.

Thank you.