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To	DOCKETS	From	Lou GOMEZ		
Co./Dept.	FAA	Co.	NMOSC		
Phone #	202-366-9329	Phone	505-525-5668		
Fax #	202-493-7251	Fax #	505-525-5623		

To the Docket:

The New Mexico Office of Space Commercialization (NMOSC) is pleased to provide comments on the FAA's proposed rulemaking in regard to the Financial Responsibility Requirements for Licensed Reentry Activities. The NMOSC is developing a commercial space complex at Upham, NM, and is particularly interested in regulations that may affect future Reusable Launch Vehicle (RLV) operations.

**DEFINITION OF LAUNCH IS INAPPROPRIATE**

The NMOSC wishes to comment on the FAA's proposal to define the start of RLV launch operations for: financial responsibility purposes as "beginning with the arrival of a launch vehicle or payload at a 'U.S. launch site.'" The NMOSC believes this definition is inappropriate.

The NMOSC understands that for ELV launches at the national launch ranges (most notably Cape Canaveral Air Force Station and Vandenberg Air Force Base), significant, high-valued, U.S. government owned facilities may be put at risk during pre-flight processing of the payload or launch vehicle. The NMOSC also understands that the ELV operators felt inadequately indemnified for this risk. Consequently, establishing the beginning of launch, and the attached insurance and indemnification requirements, when the vehicle or payload arrives at the launch site, may be appropriate for this situation.

At many non-government commercial launch complexes, however, such indemnification requirements are either a) unnecessary due to absence of significant, high valued U.S. government owned facilities near the processing site, or b) unnecessary due to commercial insurance and indemnification agreements between the launch site operator and the launch vehicle operator. *Indeed the NMOSC considers this lack of need for Government indemnification during pre-flight processing a competitive advantage vis-à-vis the more crowded launch sites.*

Considering this, the NMOSC believes that defining the beginning of launch, as "beginning with the arrival of the launch vehicle or payload" for all sites is inappropriate. In addition, the consequent insurance requirements

- limit flexibility in commercial arrangements between the launch site operators and the launch system operators and
- mitigate against the competitive advantages of less crowded launch sites.

### **ALTERNATIVE DEFINITION OF LAUNCH**

The NMOSC believes **that** a more fair and useful definition of launch **from** a commercial launch facility is **engine** ignition. This definition would limit **Government-**structured insurance requirements to the portion of operations where they are in fact necessary for all operators - flight. It also leaves maximum flexibility for commercial arrangements for **pre-flight activities** and for the development of competitive distinctions.

The NMOSC would also advocate that Government-supplied indemnification remain available under current provisions where necessary, but that it **be** considered optional during **pre-flight** processing up to the time of engine ignition.

### **Inland Launch Sites**

The NMOSC supports the concept of **\$500M** liability for the operator **and** the next **\$1.5B** for the government. The NMOSC would also advocate the importance of inland spaceports as a matter of national policy. We need them because **there** are performance benefits derived from altitude of the launch site, and there are economic and operational **benefits from** the weather. These two points taken together will help the US compete more effectively) y .

Our national space launch ranges are heavily committed to military and other federal launches. Scheduling issues and economic issues will **continue** to impact space operations **from** these ranges. **In** view **of** these benefits there should be a policy statement included in this rule articulating the points above as justification for assumption of some liability by **the** government

### **General Comments**

The NPRM would be **well** served if it established up **front** definitions for "reentry vehicles" and RLV's. In some cases the document **uses** the term reentry vehicle in the classical sense to describe only ballistic reentry vehicles, like **COMET**, which have no capability to steer out either cross range or down range trajectory **errors**. In **other** places the document uses **the** term "reentry vehicle" to also include aerodynamically controllable RLV's which have the capability to correct cross range and down range errors as well as the ability to perform abort landings if necessary, Given that the NPRM is intended to address liability and subsequent **financial** responsibility, it would seem **appropriate** to address the greater **inherent** safety, and correspondingly lesser liability of the RLV's in a **way** that differentiates it **from** ballistic reentry vehicles, like **COMET**, and all of their safety related limitations. Suggest that separate definitions of these two **types of "reentry vehicles"** be established early on in the NPRM. **Recommend that, once these definitions are** established, the entire **document** be revised to clearly identify which type of reentry vehicle is **being** addressed in any given **paragraph** of the NPRM. This would seem to be appropriate given the great variations in risk and hence liability of the two types.

Under Background, page **54449**, second full paragraph.

This paragraph refers to implementing **CSLA financial** responsibility and risk allocation requirements for licensed launch activities. The paragraph states **that "The final** rules, codified at **14 CFR** part **440**, establishes in regulations a risk-based approach, known as maximum probable loss (**MPL**) methodology to determine insurance requirements. Included in part **440** are requirements for insuring loss or damage to government range property etc. etc." This statement seems to indicate that some portions of part **440** apply **to only government** ranges and do not **apply** to fully commercial **ranges** like the New Mexico's South **West Regional** Spaceport since it is not located on a government range or other federal reservation. Given that **14 CFR** part **440**, and the **MPL** methodology contained therein, form much of **the** foundation of the **NPRM**, it would seem likely **that** other portions of the document do not apply to New Mexico's South West Regional Spaceport or similar commercial launch sites that are not part of any government range. Request **that** the **FAA** review this **NPRM** and revise it to **exclude non-government** launch **sites** from those requirements of the **NPRM** that do not **apply**.

Under Risk-Based Insurance, page **54450**, **first** and second paragraph-

These paragraphs state that "**MPL** methodology" (as **derived** from a COMET-type reentry vehicle model) " was **determined** to be appropriate and adequate for assessing reentry **risk** and statutory ceilings on insurance". It is unclear as to how the risk associated with COMET's **1960's** ballistic reentry technology can be equated with **the** greatly reduced risk of aerodynamically controllable **RLV's** like **VentureStar**. For example; the "**landing**" footprint for COMET was nearly **100** miles long whereas the landing footprint for **VentureStar** has been reduced to a **10,000** foot **runway** that is only **150** feet wide. This reduction in landing footprint has been brought **about** by the **fact** that aerodynamically controllable **RLV's** can steer out reentry trajectory and atmospherically induced errors that could not be addressed by vehicles of the COMET type. **This** is but one example of the greatly reduced risk associated with aerodynamically controllable **RLV's**. There are many others. It would seem appropriate that a more up to date model be developed and used to evaluate the risk and corresponding liability of modern **RLV's** and **their** inherently **greater** safety.

Under Scope of **RLV** Launch Authorization, page **54452**, last paragraph of second column.

This paragraph states that "the point of **payload** deployment (or attempted payload **deployment**)" is used "to **define** the end of licensed **launch** activities when the launch vehicle is an **RLV**". It should be noted that not

all payloads are deployed. For example many micro gravity experiments are completed in the **SpaceHab** module which fly in the Space Shuttle cargo bay, and is never deployed. **Therc** are many other examples and even more can be postulated for **the** future. Therefore the use of payload deployment, as **the** event that defines completion of licensed launch activities, is probably not satisfactory for all **possible** space mission types.

Under Suborbital Financial Responsibility, page 54455

This section uses the term "outer space" in various ways and places relative to suborbital versus orbital vehicles. **However** "outer **spacc**" is not defined. Suggest that the **NPRM** include a definition of "outer space" in terms of some specified altitude.

### **Specific Comments to Proposed PART 450-FINANCIAL RESPONSIBILITY**

Under §453.3 (a) Contractors and Subcontractors:

Recommend that the definition **specifically** include "reentry site operator." Although it may be implied in the current definition, it would add clarity to the **definition** if it were added. If it is not the intent of the FAA to **include** reentry site operators in the **definition**, commercial operators will be placed at a disadvantage in competition with sites operated by government personnel.

Under §453.3 (a):

Recommend including a definition of "person." This term is used throughout **the** proposed rule without a definition.

Under §453.3 (a):

Recommend including a definition of "licensed launch activity." This term is used in §450.15 without a definition.

Under Appendix **B**, 2(a):

Recommend that the first sentence be **changed** to read "Licensee hereby waives and . . . releases claims it may have against its Contractors, Customer and the United States, and against their respective Contractors and Subcontractors, for. . . fault." This is necessary to ensure **that** commercial site operators are **treated** the **same** as government **site** operators.

Under Appendix **B**, 2(b):

Recommend that the first sentence be changed to read “Customer **and Licensee’s**  
**Contractors hereby waive and** release **claims** . . . fault.” This is necessary to ensure that  
commercial site operators are treated the same as government site operators.