U.S. Department
of Transportation

**Research and
Special Programs
Administration**

400 Seventh Street, S.W.
Washington, D.C. 20590

APR 6 2004

DOT-E 11215
(ELEVENTH REVISION)

EXPIRATION DATE: July 31, 2005

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Orbital Sciences Corporation (OSC)
Mojave, CA

2. PURPOSE AND LIMITATION:

a. This exemption authorizes the transportation in commerce of certain hazardous materials listed in paragraph 6 of this exemption, contained in a Standard Pegasus or a Pegasus XL (either model hereafter referred to as "Pegasus") three or four stage winged solid fuel rocket in captive carry configuration secured beneath an L-1011 aircraft. The exemption covers launch operations and non-launch operations associated with vehicle deployment with or without a spacecraft. This exemption provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein.

b. The safety analyses performed in development of this exemption only considered the hazards and risks associated with transportation in commerce.

3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 172.102 Special Provision 109 in that the rocket motor may be transported in the propulsive state; the shipping papers, marking, labeling

and placarding requirements in 49 CFR Part 172 Subpart C, D, E, F,; and § 173.62; Part 173 Subparts E and G in that non-DOT specification packaging is not authorized, except as specified herein.

5. BASIS: This exemption is based on the application of Orbital Sciences Corporation, dated October 21, 2003, submitted in accordance with § 107.105 and the public proceeding thereon.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Proper Shipping Name/ Hazardous Materials Description	**Hazard Class/ Division**	**Identification number**	**Packing Group**
Cartridges, power device	1.4S	UN0323	II
Charges, shaped, without detonator	1.1D	UN0059	II
Charges, shaped, flexible, linear	1.1D	UN0288	II
Compressed gas, n.o.s.	2.2	UN1956	-
Cord, detonating, mild effect	1.4D	UN0104	II
Cutters, cable, explosive	1.4S	UN0070	II
Detonators, electric	1.4B	UN0255	II
Flammable solids, organic, n.o.s.	4.1	UN1325	II and III
Fuzes, detonating	1.4D	UN0410	II
Fuzes, detonating	1.4S	UN0367	II
Hydrogen, refrigerated liquid *(cryogenic liquid)*	2.1	UN1966	-

Proper Shipping Name/ Hazardous Materials Description	**Hazard Class/ Division**	**Identification number**	**Packing Group**
Hydrazine, anhydrous *or* Hydrazine aqueous solutions *with more than 64 percent hydrazine, by mass.*	8	UN2029	I
Igniters	1.4S	UN0454	II
Release devices, explosive	1.4S	UN0173	II
Rocket Motors *(88% hydroxy terminated polybutadiene (HTPB))*	1.3C	UN0186	II

7. SAFETY CONTROL MEASURES:

a. PACKAGING - The rocket configuration containing the hazardous materials will be secured beneath an L-1011 aircraft and consists of a Pegasus three or four-stage winged solid fuel launch vehicle designed and constructed to lift a spacecraft payload, also containing hazardous materials, into earth orbit.

b. OPERATIONAL CONTROLS -

(1) All safety aspects of the loading and transport of the Pegasus launch vehicle must be carried out in accordance with procedures described in "PEGASUS XL Accident Risk Assessment Report" (TD-0006 Rev C), dated April 15, 1998 on file with the Office of Hazardous Materials Exemptions and Approvals(OHMEA). All safety aspects of the loading and transport of the spacecraft payload must be carried out in accordance with procedures approved by the US government range safety organization that has jurisdiction over the property on which these activities are performed. Handling of the Pegasus before and after being attached to the L-1011 must be in accordance with the ground safety procedures of the launch site facility. All captive carry flight operations must be carried out in accordance with procedures described in the "L-1011 Orbital Carrier

Aircraft Accident Risk Assessment Report" (TD-0202 Rev B), dated July 19, 2000.

(2) Lock-outs or safe-and-arm inhibits for stage one, two and three rocket motors, fin solid rocket motors, all ordnance devices and release of the Pegasus from the L-1011 must be according to applicable procedures in the ARARs described in paragraph 7(b)(i) above.

(3) All captive carry operations will originate from Vandenberg AFB; Wallops Flight Facility; Patrick AFB; Cape Canaveral AS; Kennedy Space Center; or the Bucholz Army Air Facility, United States Army Kwajalein Atoll, Marshall Islands. To a maximum extent possible, after departing these facilities airspace, in-flight operations involving the L-1011/Pegasus must be conducted over the ocean.

(4) Captive carry ferry operations between Vandenberg AFB and Bucholz Army Air Facility will stop at Hickam AFB, Hawaii or Kailua-Kona International, Hawaii for crew rest and refueling. In the event a return trip is necessary from Kwajalein to Vandenberg AFB, the aircraft may require an intermediate fuel stop at either Wake, Johnston or Midway Island. To the degree possible, takeoff and landing of the L-1011/Pegasus will be scheduled to avoid interaction with commercial traffic and will minimize over-flight of populated areas. The L-1011/Pegasus will be parked in the hazardous payload area of Hickam AFB. As a backup, the L-1011/Pegasus may be parked in the hazardous payload area of Honolulu International Airport with prior approval of airport personnel. Orbital Sciences Corporation will contact appropriate airport personnel before a mission begins to identify any other special safety procedures that may be applicable to the flight.

(5) All U.S. captive carry launch operations must be carried out under control of the U.S. government range having jurisdiction and in accordance with affected U.S.government range safety procedures. All flight paths must be cleared by the Federal Aviation Administration(FAA).

(6) No person other than required flight crew members, required FAA personnel, OSC personnel or a representative of OSC so designated in writing, or a person necessary for handling the Pegasus may be

carried on the L-1011 while engaged in captive carry operations.

(7) Emergency Procedures:

(i) In the event of an emergency landing or mission abort resulting in return flight of the L-1011/Pegasus launch vehicle, landing must occur at an airport listed in paragraph 7.b(3) or at an airport designated by the FAA.

(ii) The return flight path of an L-1011 with an unlaunched Pegasus must be over water to the maximum extent possible. Any portion of the final segment of the flight path over land must be away from populated areas.

(iii) When the Pegasus is equipped with hydrazine, liquid propellant, and a leak or unintentional release occurs, OSC emergency procedures must be followed.

(iv) Appropriate emergency response personnel at any airport where the L-1011/Pegasus may land must have written notification of the hazardous materials within the Pegasus and of the hazards associated with a landing of the L-1011/Pegasus aircraft in order to assure proper response to an emergency is possible. Such notification must be made before a mission begins.

(8) If release of the Pegasus occurs with intent to destroy the vehicle such release must occur over water in an area known to minimize danger to watercraft below and all aircraft in event of explosion, release of hazardous material, or fragmentation hazard resulting from detonation in the air.

(9) Hazardous materials on board the Pegasus may not exceed quantities specified in Orbital Sciences' application on file with the Associate Administrator for Hazardous Materials Safety.

(10) Captive carry non-launch operations associated with transport of the L-1011/Pegasus in U.S. territory must be in accordance with flight plans coordinated with and approved by the FAA.

8. SPECIAL PROVISIONS:

a. A current copy of this exemption must be maintained at the launch facility, the facility from which a ferrying operation originates, and at any airport where the L-1011/Pegasus may land.

b. OSC must maintain all records, data, and other material needed to verify that activities carried out under this exemption conform to representations made in the application for this exemption and additional information submitted in accordance with this exemption. In case of an incident involving the packaging and aircraft identified in this exemption, Orbital Sciences Corporation must preserve all records, data, and other material relating to the vehicle, its payload, and operations associated with this launch.

c. OSC must provide descriptions of all design changes impacting on how hazardous materials are stored, pressurized, or used and an analysis of how these changes affect previously completed accident risk assessments to the Associate Administrator for Hazardous Materials Safety as soon as practicable, but not later than 30 days prior to ferrying or launch operations.

d. OCS must submit changes to flight paths along with a corresponding risk analysis performed in the same manner as that done in earlier exemption applications to the Associate Administrator for Hazardous Materials Safety as soon as practicable, but not later than 30 days prior to ferrying or launch operations.

e. The shipping papers, marking, labeling, and placarding requirements in 49 CFR Part 172 Subpart C, D, E, and F are waived.

9. MODES OF TRANSPORTATION AUTHORIZED: L-1011 cargo aircraft only, owned by OSC and specially modified and designed to carry the Pegasus launch vehicle.

10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard the L-1011 aircraft used to transport the Pegasus.

11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this exemption and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:

- All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
- Persons operating under the terms of this exemption must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
- Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this exemption must receive training on the requirements and conditions of this exemption in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this exemption, including display of its number, when this exemption has expired or is otherwise no longer in effect.

12. REPORTING REQUIREMENTS:

a. OSC is required to report any incident involving loss of packaging contents or packaging failure to the Associate Administrator for Hazardous Materials Safety (AAHMS) as soon as practicable. (Sections 171.15 and 171.16 apply to any activity undertaken under the authority of this exemption.)

b. OSC must report any failure of, or deviation from, approved safety, flight, and launch procedure or failure to release the Pegasus Launch Vehicle to the Associate Administrator for Hazardous Materials Safety, as soon as practicable.

Issued in Washington, D.C.:

for Robert A. McGuire
Associate Administrator for
Hazardous Materials Safety

APR 6 2004
Date

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, Department of Transportation, Washington, D.C. 20590. Attention: DHM-31.

Copies of this exemption may be obtained by accessing the Hazardous Materials Safety Homepage at http://hazmat.dot.gov/exemptions. Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

PO: DREEVES/sln/KFWong