U.S. Department
of Transportation
**Research and
Special Programs
Administration**

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

OCT 3 2001

DOT-E 12263
(THIRD REVISION)

EXPIRATION DATE: August 31, 2003

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Orbital Sciences Corporation (OSC)
Dulles, Virginia.

2. PURPOSE AND LIMITATIONS:

a. This exemption authorizes the transportation in commerce of certain hazardous materials listed in paragraph 6 of this exemption. The hazardous materials are contained in powered and unpowered versions of the NASA X-34 Reusable Launch Vehicle in captive carry configuration secured beneath an L-1011 aircraft. The exemption covers launch operations and non-launch operations associated with vehicle deployment. 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: Shipping papers, marking, labeling, and placarding requirements in 49 CFR Part 172 Subpart C, D, E, and F and Part 173 Subparts C, E, and G in that non-DOT specification packaging is authorized.

5. BASIS. This exemption is based on OSC's application dated September 17, 2001, submitted in accordance with § 107.109.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous materials description/proper shipping name	**Hazard Class/ Division**	**Identification number**	**Packing Group**
Aluminum alkyls (triethyl aluminum)	4.2	UN3051	I
Batteries, wet, filled with alkali, *electric storage*	8	UN2795	III
Cartridges, power device	1.4C	UN2076	II
Cutters, cable, explosive	1.4S	UN0070	II
Fuel, aviation, turbine engine	3	UN1863	I
Helium, compressed	2.2	UN1046	-
Igniters	1.4S	UN0454	II
Nitrogen, compressed	2.2	UN1066	-
Oxygen, refrigerated liquid *(cryogenic liquid)*	2.2	UN1073	-
Pyrophoric liquids, organic, n.o.s (triethyl borane)	4.2	UN2845	I

7. SAFETY CONTROL MEASURES:

a. The X-34 containing the hazardous materials will be secured beneath an L-1011 aircraft and launched by release from the L-1011 carrier aircraft.

b. All safety aspects of the loading and transport of the X-34 must be carried out in accordance with procedures described in the OSC Accident Risk Assessment Report (ARAR) TD-9319, Rev. X1, October 25, 1999; OSC ARAR TD-9110, Rev X2, May 4, 1998; Marshall Aerospace L1011/X-34 Failure Modes and Effects Analysis ER/TRI(1191)/97/0576, January, 1998; or subsequent versions submitted to and on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA).

c. All safety aspects of the loading and transport of the X-34 must be carried out in accordance with the ground safety procedures of the originating facility.

d. All captive carry mission and ferry operations will originate at Edwards AFB, CA; White Sands Missile Range, NM; Holloman AFB, NM; or the Florida Space Launch Complex (including Patrick AFB, Cape Canaveral Air Station, and the NASA Kennedy Space Center).

e. Mission operations will be conducted within restricted airspace under range control or over water. Mission 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.

f. Ferry operations must be between Edwards AFB, CA, Holloman AFB, NM, and the Florida Space Complex along routes for which risk analyses have been provided to and are on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA). Ferry operations are also permitted to recover the X-34 from an alternate landing site in close proximity to the facilities listed in paragraph 7.d. Ferry operations must be conducted with no oxygen, refrigerated liquid on board. To the maximum extent possible, routes must be selected to avoid overflight of populated areas. Ferry operations must be in accordance with flight plans and flight coordinated with and approved by the Federal Aviation Administration (FAA).

g. 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 X-34 may be carried on the L-1011 while engaged in captive carry operations.

h. <u>Emergency Procedures:</u>

(1) In the event of an emergency landing of the L-1011/X-34 vehicle, landing must occur at an airport in 7.d or at an airport designated by the FAA.

(2) Appropriate emergency response personnel at any airport where the L-1011/X-34 may land must have written notification of the hazardous materials within the X-34 and of the hazards associated with landing of the L-1011/X-34 aircraft in order to assure proper response to an emergency is possible. Such notification must be made before a mission begins.

i. If release of the X-34 occurs with intent to destroy the vehicle, such release must occur in an area known to minimize danger due to explosion, release of hazardous material, or fragmentation hazard resulting from detonation in the air.

j. Hazardous materials on board the X-34 may not exceed quantities specified in OSC's application on file with the Associate Administrator for Hazardous Materials Safety.

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/X-34 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, OSC must preserve all records, data, and other material relating to the vehicle and operations.

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 risk assessments to the Associate Administrator for Hazardous Materials Safety as soon as practicable, but not later than 90 days prior to ferrying or launch operations.

d. OSC must submit changes to flight paths for ferry operations along with corresponding risk analyses performed in the same manner as that done in the original exemption application to the Associate Administrator for Hazardous Materials Safety as soon as practicable, but not later than 60 days prior to ferry 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 X-34 launch vehicle.

10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard the L-1011 aircraft used to transport the X-34.

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.

- 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 the 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 procedures or failure to release the X-34 to the Associate Administrator for Hazardous Materials Safety, as soon as practicable.

Issued in Washington, D.C.:

OCT 3 2001

Robert A. McGuire
Associate Administrator for
Hazardous Materials Safety

(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.

The original of this exemption is on file at the above office. Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

Copies of exemptions may be obtained from the AAHMS, U.S. Department of Transportation, 400 7th Street, Washington, DC 20590-0001, Attention: Records Center, 202-366-5046.

PO: ADREEVES/sln