

March 7, 2011



U.S. Department  
of Transportation

East Building, PHH-30  
1200 New Jersey Avenue S.E.  
Washington, D.C. 20590

**Pipeline and Hazardous  
Materials Safety Administration**

DOT-SP 12005  
(SEVENTH REVISION)

EXPIRATION DATE: January 31, 2015

(FOR RENEWAL, SEE 49 CFR §107.109)

1. GRANTEE: Pratt & Whitney Rocketdyne, Inc.  
(Former Grantee: The Boeing Company)  
Canoga Park, CA
2. PURPOSE AND LIMITATION:
  - a. This special permit authorizes the transportation in commerce of xenon gas in a non-DOT specification composite cylinder which is part of the International Space Station. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein. The most recent revision supersedes all previous revisions.
  - b. The safety analyses performed in development of this special permit only considered the hazards and risks associated with transportation in commerce.
  - c. Party status will not be granted to this special permit.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR § 173.24(b)(1) in that xenon gas will be released in transportation; § 173.302 in that a non-DOT specification cylinder is authorized and the package marking requirement contained in § 172.301(c) is waived.

**March 7, 2011**

5. BASIS: This special permit is based on the application of Pratt & Whitney Rocketdyne, Inc., dated November 22, 2010 submitted in accordance with §§ 107.109.
6. HAZARDOUS MATERIALS (49 CFR § 172.101):

<b>Hazardous Materials Description</b>			
<b>Proper Shipping Name</b>	<b>Hazard Class/ Division</b>	<b>Identification Number</b>	<b>Packing Group</b>
Xenon, compressed	2.2	UN2036	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packaging prescribed is a non-DOT specification composite cylinder which is part of a Plasma Contactor Unit (PCU). The Gas Feed System is a sub-assembly of the PCU and is composed of the xenon pressure vessel and its pressurized components. The xenon pressure vessel, a major component of the PCU, is a graphite-epoxy over-wrapped cylinder with a 301 stainless steel liner. The pressure vessel, designed to operate at pressure of 3,000 psia with a burst pressure of 9,328 psia, is expected its pressure not to exceed 2,338 psia during transportation. No pressure relief device is required on the xenon pressure vessel. The packaging is made in accordance with Boeing North American's drawings and other related documents on file with the Office of Hazardous Materials Special Permits and Approvals (OHMSPA). The Plasma Contactor Unit is packaged within a specially designed transport container. The combined package weighs approximately 750 lbs.

b. TESTING -

(1) When replacement units are fabricated or refurbished, one unit taken at random out of each lot must be subjected to cyclic pressurization test. The selected unit must be subjected to a total of 50 pressure cycles between zero and the maximum operating pressure (3,000 psia) at a rate not exceed 4 cycles per minute. The unit subjected to the pressure cycle test must withstand the pressure without evidence of distortion or failure. Immediately after the pressure

**March 7, 2011**

cycle test, the unit subjected to the pressure cycle must be burst tested. The burst pressure must be greater than 9,000 psia.

(2) Each xenon pressure vessel must be pressure tested to 5,175 psia prior to shipment.

c. OPERATIONAL CONTROLS -

(1) All safety aspects of the loading and transport of the Plasma Contactor Unit must be carried out in accordance with Boeing North American's EID-01893, "ORBITAL REPLACEMENT UNIT TRANSPORT CONTAINER OPERATION PROCEDURE", dated 15 August 1996 on file with the OHMSPA.

(2) The container must be placed on a dedicated motor carrier, secured by the use of tension chains and blocks.

(3) The applicant must ensure securement of the containers meets the requirement of 49 CFR §§393.100, 393.102, and 393.104 (securment systems, blocking and bracing).

(4) The Gas Feed System may be shipped as a sub-assembly or assembled with the PCU. As a sub-assembly the xenon is not vented. When assembled with the PCU, the xenon gas cylinder is vented and the release rate must not exceed 7.5 cubic centimeters per minute during transportation.

(5) Emergency response information provided with the shipment and available via an emergency response telephone number must indicate that the xenon pressure vessel is not fitted with pressure relief devices and provide appropriate guidance for a fire.

8. SPECIAL PROVISIONS:

a. A person who is not a holder of this special permit, but receives a package covered by this special permit, may reoffer it for transportation provided no modifications or changes are made to the package and it is offered for transportation in conformance with this special permit and the HMR.

**March 7, 2011**

b. A current copy of this special permit must be maintained at the launch facility and the facility from which a transportation operation originates.

c. Shippers using the packaging covered by this special permit must comply with all provisions of this special permit, and all other applicable requirements contained in 49 CFR Part 171-180.

d. Marking - The marking requirement of § 172.301(c) is waived.

e. Shipping papers displaying "DOT-E 12005" may continue to be used until October 1, 2007, provided the special permit remains valid.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle.

10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each motor vehicle used to transport packages covered by this special permit.

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

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

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

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

Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)–“The Hazardous Materials Safety and Security Reauthorization Act of 2005” (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term “exemption” to “special permit” and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. REPORTING REQUIREMENTS: Shipments or operations conducted under this special permit are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR §171.15 immediate notice of certain hazardous materials incidents, and §171.16 detailed hazardous materials incident reports. In addition, the grantee(s) of this special permit must notify the Associate Administrator for Hazardous Materials Safety, in writing, of any incident involving a package, shipment or operation conducted under terms of this special permit.

Issued in Washington, D.C.:



for Dr. Magdy El-Sibaie  
Associate Administrator for Hazardous Materials Safety

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

**March 7, 2011**

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at

[http://hazmat.dot.gov/sp\\_app/special\\_permits/spec\\_perm\\_index.htm](http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm)

Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: KFW/dl