

July 31, 2015



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 15471
(FIRST REVISION)

EXPIRATION DATE: June 30, 2019

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: National Aeronautics & Space Administration (NASA)
Washington, DC
2. PURPOSE AND LIMITATION:
 - a. This special permit authorizes the transportation in commerce of the Space Shuttle Orbiter Auxiliary Power Unit subsystem fuel propellant tanks containing the residue of Hydrazine, anhydrous which does not meet the requirements of 49 CFR 173.172. 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 the development of this special permit only considered the hazards and risks associated with the transportation in commerce.
 - c. No party status will 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 § 173.172 in that the tank authorized herein meets alternative design criteria.
5. BASIS: This special permit is based on the application of National Aeronautics & Space Administration (NASA) dated June 8, 2015 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 |
| Hydrazine, anhydrous | 8 | UN2029 | I |

7. SAFETY CONTROL MEASURES:a. PACKAGING:

The packaging for the Auxiliary Power Unit Fuel Tank is as follows:

(i) The pressure vessel (tank) has a 28-inch spherical diameter. The tank is constructed of spun-wound titanium with 0.048 inch wall thickness and is electron beam welded. The volumetric size is 6.5 cu ft (approximately 50 gallons). The tank must be designed for an operational pressure of 425 psia; must have a Proof Pressure rating of 970 psig; and must have Burst Pressure rating of 1,321 psig. The tank must be manufactured in accordance with Part Number 80228-1 and conforms to the drawing(s) on file with the Hazardous Materials Approvals and Permits Division.

(ii) Each pressure vessel (tank) must be totally encapsulated by a hydrazine compatible material then placed into a fiberboard box lined with a minimum of 4 inches of polyurethane foam conforming to MIL-C-26514, Type I, Class 2. The bottom and top of the container must be lined with a minimum of 5 inches of polyurethane foam conforming to MIL-C-26514, Type I, Class 2. When placed in the cushioned box, the tank must be prevented from rotation by compression of the cushioning materials and the protrusion of the ports. The fiber board box will be sealed shut using commercial packing tape. The sealed fiberboard box must be placed into a plywood shipping container lined on all sides, top, and bottom with a minimum of 2 inches of polyurethane foam conforming to MIL-C-6514, Type I, Class 2.

b. OPERATIONAL CONTROLS -

(i) The pressure vessel (tank) may only contain a residue of hydrazine, anhydrous when offered for transportation.

(ii) Prior to transportation the tank openings must be sealed using Dynatube caps which must be torqued to 50 inch-lbs; provide dual seals; and must be inspected by Quality Assurance Personnel.

(iii) After the tank is sealed the Safety Engineer must perform toxic vapor checks on the entire tank using an Interscan device. The toxic vapor checks must show 0.0 ppm before the tank is offered for transportation.

(iv) Transportation of the tank is authorized only between the Kennedy Space Center in Florida and the White Sands Testing Facility in New Mexico.

8. SPECIAL PROVISIONS:

a. A person who is not a holder of this special permit who receives a package covered by this special permit may reoffer it for transportation provided no modification or change is made to the package and it is reoffered for transportation in conformance with this special permit and the HMR.

b. A current copy of this special permit must be maintained at each facility where the package is offered or reoffered for transportation.

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:

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- 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

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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 Material Safety Administration, U.S. Department of Transportation, East Building PHH-30, 1200 New Jersey Avenue, Southeast, Washington, D.C. 20590.

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

PO: Majors:SG