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

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

JUN 20 2002

DOT-E 12840

EXPIRATION DATE: May 31, 2004

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: GreenField Compression, Inc.
Richardson, TX

2. PURPOSE AND LIMITATION:

a. This exemption authorizes transportation in commerce of compressed natural gas (CNG) in manifolded and framed non-DOT specification seamless steel cylinders originally certified as Specification DOT-107A seamless steel tank car tanks. 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. The safety analyses did not consider the hazards and risks associated with consumer use, use as a component of a transport vehicle or other device, or other uses not associated with transportation in commerce.

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

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 173.302(a)(1) and 173.314(c) in that non-DOT specification cylinders are not authorized except as specified herein.

5. BASIS: This exemption is based on the application of GreenField Compression, Inc. dated September 21, 2001 and additional information dated April 30, 2002, submitted in accordance with § 107.105 and the public proceeding thereon.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

| Hazardous Material Description | | | |
|---|---|---|---|
| **Proper Shipping Name** | **Hazard Class/ Division** | **Identi- fication Number** | **Packing Group** |
| Methane, compressed or Natural gas compressed (with high methane content) | 2.1 | UN1971 | N/A |

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Packagings prescribed are seamless steel cylinders (flanged-end tube), of 50 cubic feet nominal water capacity each, originally manufactured and maintained in conformance to the requirements for DOT Specification 107A seamless steel tank car tanks (§§ 179.500 and 180.500). The cylinders have been removed from the trucks and are framed, manifolded and mounted on a trailer in accordance with GreenField Compression, Inc. Drawings S-E12497-100, S-E12497-101, S-E12497-102, S-E12497-103, S-E12497-104 and DOT-E12497-102 submitted on April 30, 2002 as part of the application and on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA).

(1) Each cylinder must be tested for hardness in accordance with GreenField Compression procedures on file with OHMEA.

(2) Each cylinder must be equipped with one shut-off valve that is rated for the maximum stamped test pressure of the cylinder.

(3) A least 1% of the flange stud bolts must be tested for the required strength and elongation. The test data must be submitted to OHMEA prior to its first use.

(4) Each flange gasket must be leak tight and may not be prone to cold flow for the maximum operating pressure at 149°F (65°C) when the cylinder is filled with CNG. A sample of the gaskets must be tested and the test data must be submitted to OHMEA prior to its first use.

(5) Each cylinder must be equipped with two safety relief devices (PRD), one at each end. The discharge of each PRD must be connected to a single header (pipe) having non-obstructed passage, pointed upward and extended to the top of the trailer. The drawing of the cylinder assembly which include PRD and piping must be submitted to OHMEA prior to its first use.

b. TESTING - Each cylinder must be retested and reinspected as prescribed in § 173.34(e) for DOT-3AAX except the test pressure is equal to the marked test pressure stamped on each cylinder.

c. OPERATIONAL CONTROLS -

(1) Each cylinder must be filled only with non-corrosive compressed natural gas (scrubbed to remove acid gases) and may not contain any liquefied gas. The gas contained in the cylinder may not have more than:

(i) 0.5 lbs. of water per million cubic feet at standard temperature and pressure (STP) (60°F, 30 inches Hg).

(ii) 0.1 grain of hydrogen sulfide per 100 cubic feet at STP as determined by ASTM D 2385-76 Test for Hydrogen Sulfide and Mercaptan Sulfur in Natural Gas (Cadmium-Sulfate Iodometric Titration Method).

(iii) 0.1 grain per 100 cubic feet of total soluble sulfides other than $H_2S$ at STP.

(iv) One percent by volume of oxygen.

(v) Three percent by volume of carbon dioxide.

(vi) Four percent total (including but not limited to items (4) & (5) of this paragraph) by volume of all non-hydrocarbon gases (excluding nitrogen).

(2) The shipper is responsible for establishing procedures to determine the composition and impurity level of the gas at each facility used for filling the cylinders, and to verify a compliance to the requirements of this exemption. Records of the gas composition and impurity levels must be maintained for three years.

(3) Cylinders that become contaminated with $H_2S$ or soluble sulfides must be condemned.

(4) During any unloading operation each cylinder must be inclined to an angle that lowers the centerline of the cylinder at the discharge end to a point lower than any portion of the opposite end of the cylinder.

(5) The maximum fill pressure for any cylinder may not exceed 7/10 of the marked test pressure for that cylinder. The maximum fill pressure for any cylinder covered by this exemption may not exceed 4000 psi.

(6) The maximum fill pressure for any cylinder in the frame assembly is limited by the cylinder with the lowest marked test pressure in that assembly.

(7) Skid mounted cylinders must be secured to the motor vehicle in accordance with the requirements of 49 CFR 393.100 through 393.106. Additionally, the motor vehicle's bumper must be located at least 6 inches to the rear of any cylinder component used for loading or unloading that may contain lading during transit.

8. SPECIAL PROVISIONS:

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

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

c. Each cylinder must be marked "DOT-E 12840" as specified in §§ 172.302(b) and (c). The existing DOT-107A marking must be removed or permanently covered.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle and cargo vessel.

10. MODAL REQUIREMENTS:

a. A current copy of this exemption must be carried aboard each cargo vessel, or motor vehicle used to transport packages covered by this exemption.

b. The cylinders must be loaded on the motor vehicle in accordance with § 177.840(b).

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 this exemption has expired or is otherwise no longer in effect.

12. REPORTING REQUIREMENTS: The carrier 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.) In addition, the holder(s) of this exemption must inform the AAHMS, in writing, of any incident involving the package and shipments made under the terms of this exemption.

Issued at Washington, D.C.:

JUN 20 2002

(DATE)

Robert A. McGuire
Associate Administrator for
Hazardous Materials Safety

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.

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