



U.S. Department
of Transportation

**Research and
Special Programs
Administration**

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

MAR 4 2004

DOT-E 10741
(SEVENTH REVISION)

EXPIRATION DATE: January 31, 2006

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Northern Natural Gas Company
Houston, TX
2. PURPOSE AND LIMITATION:
 - a. This exemption authorizes the use of certain non-DOT specification cylinders mounted securely on flat bed trailers for the transportation in commerce of compressed natural gas. 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 §§ 173.34(e)(1), 173.301(h), and 173.302 (a)(3) in that non-DOT specification packaging is not authorized, except as specified herein.
5. BASIS: This exemption is based on the application of Northern Natural Gas Company dated February 23, 2004, submitted in accordance with § 107.109.

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6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Proper Shipping Name/ Hazardous Materials Description	Hazard Class/ Division	Identi- fication Number	Packing Group
Compressed Gas, flammable, n.o.s. (contains compressed natural gas)	2.1	UN1954	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Prescribed packagings are certain non-DOT specification compressed gas cylinders designed, constructed, and tested in accordance with 49 CFR Part 192, except as modified by this exemption. The description of the cylinders is as follows:

(1) The cylinders, also known as "volume bottles" are securely mounted on flat bed trailers as per drawings in Appendix A of Northern's application. A trailer may have from three to six volume bottles.

(2) The volume bottles are of 30 inches outside diameter (nominal) x 0.5 inch thick and of lengths ranging from 33 to 40 feet; with a marked service pressure of 867 psig; and manifolded in accordance with § 173.301(d) (2).

(3) The volume bottles and associated piping; and valves meet requirements in 49 CFR Part 192 for Class 3 locations, and the provisions of this exemption:

(i) Each volume bottle is of welded construction. The material of construction is API 5LX pipeline steel sections having a specified minimum yield strength (SMYS) not less than 52,000 psi. The end closures are made in accordance with ANSI B16.9 or MSS-SP-75.

(ii) Each circumferential butt weld joint must have been nondestructively tested in accordance with § 192.243, and the records of the test results must be maintained at each facility from which the trailers are charged with CNG.

(iii) Fittings, such as end caps, nozzles and valve mountings, on each volume bottle must conform to applicable pipeline standards, and must be at least as strong as the pipeline material used.

(iv) Each volume bottle must be fitted with a pressure relief device valve designed to operate at a set pressure not less than 954 psig but not more than 1000 psig.

(v) All valve assemblies must be protected by means of the rollover protection structure shown in Northern's drawing titled "Planned Rollover Protection for Volume Bottle Piping: So. Sioux City Trailer Shown" dated 1-6-92, on file with the Office of Hazardous Materials Exemptions and Approvals (OHMEA). If any modification is made to this design, a stress analysis to determine the adequacy of the rollover protection must be approved by the OHMEA and be on file with OHMEA prior to the modification of the overturn device.

(4) Internal corrosion control:

(i) The composition of the gas must be the same as that specified in Northern's application Appendix G on file with OHMEA. A volume bottle may not be charged with a compressed natural gas having a water content greater than 6 pounds per million standard cubic feet and/or a hydrogen sulphide of 0.5 grains per 100 standard cubic feet of gas volume.

(ii) Corrosive gas may not be transported under this exemption unless it has been investigated that the corrosive effect of the gas on the volume bottle is not detrimental to its integrity.

(iii) Drain tube: Each discharge end of the volume bottle must be equipped with a bottom drain tube, for semi-annual draining of accumulated water.

(5) Internal corrosion monitoring: Ultrasonic inspection of bottom along the length of each volume bottle must be performed on an annual basis to ensure

that any metal loss, or stress corrosion cracking will not be detrimental to its integrity.

(6) Atmospheric corrosion control and monitoring: Must be in accordance with requirements in § 192.479 except that each volume bottle must be reevaluated on annual basis and remedial action must be taken when necessary.

(7) Any volume bottle that failed any of the prescribed tests may not be used under this exemption.

(8) Authorized Trailers:

(i) Only the CNG trailers specified by Model number and serial number specified in APPENDIX B-R1 to this exemption are authorized.

(ii) The use of these trailers is limited to providing a temporary natural gas source at a Northern's customer facility when an emergency such as pipeline service interruption arises. Northern's customers are natural gas distribution companies located in Class 1, Class 2, or Class 3 location defined in § 192.5.

b. TESTING:

(1) Prior to use under this exemption, each volume bottle must be hydrostatically tested in accordance with 49 CFR Part 192 Subpart J to at least 1.5 times the marked service pressure, unless a hydrostatic test was performed after March 1, 1993. The test pressure must be maintained for 8 hours. Any evidence of leak, distortion or defects that may be detrimental to the integrity of the volume bottle must be corrected prior to shipment.

(2) As an alternate to hydrostatic testing specified in paragraph (1) above, each volume bottle may be pneumatically tested to 1.25 times the service pressure. Suitable safeguards must be provided to protect personnel and property, should there be a failure during the test. Each volume bottle must be pressurized with dry nitrogen gas or natural gas. The tank must be pressurized gradually to one-half of the test pressure. Thereafter, the pressure must be in steps of approximately one tenth of the test pressure

until the required test pressure has been reached. The test pressure must be held for at least 8 hours. The pressure must then be reduced to about service pressure, and maintained at that pressure when the entire volume bottle is inspected for leaks. Any evidence of leak, distortion or defects that may be detrimental to the integrity of the volume bottle must be corrected prior to shipment.

(3) Each volume bottle must be retested and re-qualified as above once every year as specified in paragraphs (1) and (2) above.

(4) Any volume bottle that failed the annual proof pressure testing prescribed above shall not be used under this exemption.

(5) No repair by field welding on a volume bottle is permitted.

8. SPECIAL PROVISIONS:

a. MARKING

(1) Each volume bottle must be marked:
"DOT-E 10741(CNG)".

(2) Each volume bottle passing a periodic inspection and re-qualification under the provisions of this exemption must be marked as specified herein:

(i) Each volume bottle must be durably and legible marked with the date (month and year) and the type of test performed.

(ii) The marking must be visible near the rear end of the volume bottle, at least 1 inch high.

(iii) The type of test may be abbreviated as follows: V for external visual inspection and test, P for pressure test, and T for thickness testing. For example, the markings "05-94 P, V, T" will indicate that in May 1994, the volume bottle passed the required pressure test, external and internal visual and thickness tests.

(iv) Each motor vehicle must be plainly marked "DOT E-10741" on both sides of the roll-over

protection frame, in letters and numerals at least 2 inches high on a contrasting background.

b. The owner of the volume bottles or his authorized agent must retain record of all test results and the name and the address of the retest facility. The records must be made available to a DOT official or a DOT authorized agent when requested.

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

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle.
10. MODAL REQUIREMENTS: A current copy of this exemption must be carried aboard each motor vehicle used to transport packages covered by this exemption.
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:
- o All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
 - o 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.
 - 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 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 in Washington, D.C.:



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Robert A. McGuire
Associate Administrator for
Hazardous Materials Safety

MAR 4 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.

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