

STATE OF NEW HAMPSHIRE DEPARTMENT OF SAFETY

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INFORMATIONAL BULLETIN

Table with 5 columns: BULLETIN #, TITLE, DATE ISSUED, SUPERSEDES, RELEASED BY, APPROVED BY, SOURCE, SUPERSEDED BY. Row 1: 2017-01, Compressed Natural Gas Facilities without Pipelines, 2/13/2017. Row 2: 2013-09, RDA, JWD, NFPA 1 & NFPA 55.

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Compressed Natural Gas (CNG) Systems

Purpose/History

Natural gas, compressed or distributed via pipeline, is not a new product, nor is it foreign to the fire service. In recent years, compressed natural gas (CNG) has been distributed without a pipeline via high-pressure trailers over the road. The process consists of natural gas being compressed and loaded into trailers at a pressure of approximately 4000 psi. The trailer is transported to the end user, connected to the heating plant of the facility and left unmanned at the site. The facility uses a "just in time" management philosophy. Just before the trailer is empty, it is replaced. Consequently, these facilities are receiving 3 or 4 deliveries a day. This new type of fuel supply represents very large savings to the end user and has become very popular. Unfortunately, this technology is so new that there are no specific guidelines for its installation or use. This bulletin is intended to provide a basic guide for proposed CNG installations.

Based on the current State Fire Code the following shall be required:

Performance Based Design

NFPA 1 Section 1.14 authorizes the authority having jurisdiction (AHJ) to require design plans for review of any new construction, modification etc. As stated above, at present there are no codes or standards that are specific to the design, construction and testing of CNG installations where it is used as a fuel source operating at these pressures, and where a DOT trailer is used as the storage vessel. NFPA 1, Chapter 5, authorizes performance-based designs. All CNG installations of this type should be treated as a performance-based design. The design should begin at the rear of the DOT trailer and terminate at the point in the system where the prescriptive requirements of NFPA 54 can be enforced. Additionally, a TIA has been issued in the NFPA 55 Annex reinforcing thee requirements of NFPA 55 apply to these installations.

NFPA 55, 2013 edition, Chapter 3, Chapter 4, sections 4.2., 4.5 thru and including 4.12, Chapter 7, if the facility is going to be enclosed in any type of structure chapter 6 should be used as well as the State Building Code.

In addition to the above, the following shall also be required:

- Trailers shall be provided with a mechanism, either thermally, pneumatic, or mechanically activated that will allow for remote stoppage of the flow of product from the main trailer manifold in the event of an emergency. This valve is in addition to the thermally activated relief venting protection.
- Computer model analysis of a worst-case scenario consisting of a product release (total venting, multiple trailers) without ignition and a worst-case scenario of the product with fire conditions involving the trailer and product.
- A comprehensive fire protection and response plan.
- A comprehensive testing criteria showing that the facility has been constructed and tested to the criteria established in the 2010 edition of ASME B31.3.
- The fire protection and response plan, pressure testing and weld testing criteria must be approved by the fire department or State Fire Marshal's Office.
- Compliance with any associated Homeland Security requirements.